

**inside
moves**

Official
Tips and Strategies
from the Source

Microsoft Press

INTERNET GAMING
ZONE

Microsoft®

Internet Gaming Zone

FIGHTER ACE

The Official Companion Book

Ben Chiu



THE PERSONAL COMPUTING PRESS

Microsoft® *Press*

**inside
moves**

1998

Microsoft®
Internet Gaming Zone:
Fighter Ace™

Ben Chiu

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Dedication

This book is dedicated to my father, for too many reasons to list here, but most especially for passing to me your love of flying, gadgets, and computers.

Ben Chiu

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*Robert C. Lock
President and Editor-in-Chief
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MEET THE FUTURE OF ONLINE GAMING

It's a great time to be a personal computer user—and an even greater time to be a game fan! We're in the midst of a genuine golden age of computers, with explosive growth in technology and in user numbers. At the leading edge of all this? That thing called the Internet.

The Microsoft Internet Gaming Zone is the result of years of development effort. On the surface, the IGZ—or *Zone*, as it's referred to by members—might seem like merely a convenient place to download and play some of the hottest games available. But it's really much more than that. The Internet Gaming Zone is a community filled with people who have the same interests you do: computers and the best gaming on the planet.

Since its inception in 1996, *Zone* membership has grown phenomenally, from 15,000 members in September, 1996 to more than 160,000 by that December. And all this early growth was *before* the "official" opening of the newest and most exciting part of the *Zone*—its premium games. Leading the way is a real contender, *Fighter Ace*. This massively multiplayer air-combat game promises to change the world of multiplayer gaming because of its user-friendliness, state-of-the-art graphics, and heart-pumping game play.

So get your joysticks warmed up and be sure to check six often—you're in for an exhilarating ride!

Good hunting!

Ben Chiu



Welcome to Microsoft's Internet Gaming Zone.

Welcome to Fighter Ace!

Fighter Ace is the first premium product offered on the Microsoft Internet Gaming Zone. This huge multiplayer air-combat game allows over 100 living, breathing players to test their skills against one another over the Internet in a quick—and entertaining—way. That's right, just you and 99 plus of your closest buddies can dogfight to your hearts' content. Think of the possibilities!

The concept of an online, multiplayer air-combat game is nothing new. It has always been more challenging and exciting to play games against humans than against any computer-controlled opponent. The fact that you're playing against a person who actively plots to kill your virtual persona while you have an equal opportunity to return the favor is really what multiplayer games are all about. Yeah, it *sounds* a little intimidating, but it provides the most fun and thrills found anywhere.

Although Fighter Ace, like other online air-combat sims out there, features historically accurate planes with realistic-feeling flight characteristics, what separates it from the others is it was designed to be played without a Ph.D. in aerodynamics or 2,000 hours of flight training. Even though you can just sit down and start playing, this book has been designed to help hone your skills and provide insights into Fighter Ace that come straight from the source—the people who designed and created it. Whether you're looking for help and assistance in getting started, or trying to develop the edge you need to rule the virtual skies of the Zone, you've come to the right place.

However, Fighter Ace is so intricately tied to the Microsoft Internet Gaming Zone that you need to know a little more about the Zone before you can try some of our tips and strategies. Here's how we've organized this book.

How to Use This Book

Because we're essentially dealing with two pieces of software—the Zone and Fighter Ace—this book is divided into two main sections. Section One covers getting onto and navigating the Zone itself. Section Two covers the setup for Fighter Ace as well as hints, tips, and tactics.

One of the most exciting things about the Zone is that it—just like the Net itself—is constantly evolving. Because massively multiplayer games are fluid, the best ones continue to change over time. The developers watch what players are doing, collect feedback from them, and use the information to adjust the

game and game play. This not only makes for a great game, but it also means that some of the features and screen shots used in this book may change in subtle (and sometimes not-so subtle) ways. For the most up-to-date information, your best source for news of product changes and updates is the Zone itself.



Have You Been Zoned?

If you've never visited the Zone before (if you haven't registered or downloaded all of the Zone software, you can't consider yourself Zoned), you most likely don't have everything you need to jump into a game and start playing.

The Zone can seem a bit overwhelming the first time you log on, but don't worry: this section can guide you through your first visit and help set you up correctly. Once you're up and running, we'll take you on a tour of the Zone to help you get acquainted with what's available. Before you know it, you'll be playing like, well, an Ace. Ready? Let's get started!

What Is the Microsoft Internet Gaming Zone?

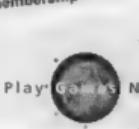
The Internet Gaming Zone (IGZ) is one of the most convenient and easy-to-use ways to find other gamers interested in playing popular games on the Web. The Zone is a place for anyone who enjoys games and competition—from the time-honored strategies of Chess and Go to the hottest games from top developers such as LucasArts, Hasbro Interactive, and, of course, Microsoft.

Even a Net novice can tell the Zone's got great multiplayer games, easy matchmaking, and a lot of punch per player. Below is a brief listing of the Zone's four gaming services. However, keep in mind that the Zone is constantly being improved and updated. For the most up-to-date information on the Zone and its game offerings, enter <http://www.zone.com> on your Web browser.

Zone Membership includes:

- Eight classic games: Backgammon, Bridge, Checkers, Chess, Go, Hearts, Reversi, and Spades.
- ZoneMatch(tm) matchmaking rooms, where you can team up for exciting multiplayer games such as Microsoft Monster Truck Madness, Close Combat, Hellbender, and Golf version 3.0.

- ZoneLAN, where you can find players for many of the popular MS-DOS multiplayer games playable over a local area network (LAN). In the ZoneMatch rooms in ZoneLAN, you can chat with other players and play games you each have on your hard disks.
- Zone Premium, the "pay-to-play" section, is the Zone's newest service. Fighter Ace is the first of these hot, exciting, made-for-the-medium games found on the IGZ. Yes, it costs more (the other services are free), but the best usually does. As a side benefit, the fee keeps out all but the most fervent gamers!



GETTING IN THE ZONE

This chapter is for those of you who wish to jump right in and start having fun on the Microsoft Internet Gaming Zone. It will get you up and running quickly, while answering just about any question you might have along the way.

Getting Started

Before you can play your first Zone game, you must already have installed, or you must download and install, the following (otherwise, you might get a message telling you that the IGZ software is not detected).

- An ActiveX-enabled browser, such as Microsoft Internet Explorer
- One of the Zone software packages
- Software for the specific game(s) you're interested in playing
- A multiplayer software patch (if the game requires it)

If this software seems a little intimidating, don't worry—we'll go over the process step-by-step. However, make sure your system meets the minimum requirements you need to get on the Zone before you begin.

Zone Requirements

Below are two lists. The first shows the recommended absolute minimum system requirements for the Zone; the second is the suggested minimum list of what you need to optimize your play performance. Most of you probably already know that when it comes to games and the Web, the bigger your hard disk and the faster your computer, the better.



*Welcome to the Internet
Gaming Zone!*

We've updated the Zone software since your last visit. Get the latest software right here.

• Is this your first time visiting the Internet Gaming Zone? You'll need to [sign up](#) before you can install the Zone software!

• Need a member ID? Unsure what a member ID is? If you answered yes to either of these burning questions, you'll need to [sign up](#) before you can install the Zone software!

I don't want to install anything right now! [Get me out of here!](#)

Note: Jumping to another page before the download is completed will cancel the download.

Please select which features you'd like to update:

Required	Optional	Optional	Optional
Core Update (1.0, 1.0.1, 1.0.2)	Classic Update (2.6, 2.6.1)	Detail Update (2.6, 2.6.1)	Complete Update (2.6, 2.6.1)

*Please note that the download size estimate is conservative. The specific size will vary depending on your current system configuration.

[CONTINUE](#)

If the current IGZ software isn't detected, you might see a message like this one when you try to access the Zone.

What About Windows 3.x and Macs?

Microsoft's Internet Gaming Zone discontinued support for the Windows 3.x and Apple Macintosh platforms on May 15, 1997 because the Zone was redesigned using Microsoft ActiveX technology. ActiveX provides game developers with numerous tools to help create immersing, easy-to-use games that—most importantly—automatically upgrade their components, thus ensuring that you always have your favorite game's latest enhancements.

Unfortunately, not all of the latest ActiveX technology used by game developers is available for Windows 3.x or Macintosh platforms. So far, this hasn't been much of a problem because nearly all of the growth experienced on the Zone has been on Windows 95 and Windows NT platforms. If you don't currently run either, we can't encourage you strongly enough to upgrade your operating system or browser so you can enjoy the best games and game play on the Internet.

Minimum System Requirements

You need either:

- Microsoft Windows 95 operating system, running on a 486/50 processor with 8MB RAM

or

- Microsoft Windows NT 4.0 operating system, running on a 486/50 processor with 12MB RAM

as well as the following additional components:

- 6 MB of available hard disk space
- VGA 256-color, 640 x 480 display
- 14.4 KBPS Internet access
- Microsoft Internet Explorer version 3.01 or later and Macromedia Shockwave Flash player
- Mouse or compatible pointing device

Recommended System Requirements

For optimum gaming performance, you really should have either:



- Microsoft Windows 95 operating system, running on a 486/50 or higher processor with 16MB RAM

or

- Microsoft Windows NT 4.0 (or higher version) operating system, running on a 486/50 or higher processor with 16MB RAM and the following additional components:
 - 6 MB of available hard disk space
 - Super-VGA 256-color, 800 x 600 display
 - Sound card with speakers or headphones
 - 28.8 KBPS Internet access
 - Microsoft Internet Explorer version 3.02 or higher and Macromedia Shockwave Flash player
 - Mouse or compatible pointing device
 - Joystick

Tip: *A joystick is handy and fun for action games, but it's not usually required for many of the strategy, card, or board games.*

Cost

At this point, you're probably saying to yourself, "The Zone sounds great." But since you're also a level-headed, cautious gamer, your next question is probably, "How much is it gonna cost me?"

Currently, there are four services offered on the Zone—Classic Zone, ZoneMatch, ZoneLAN, and Premium Games. Microsoft assures us that all the classic Zone games will remain free to all members *forever*. So what's the catch? Well, Microsoft is able to provide this free service because the funds received from its advertisers helps offset its development and operational costs.

As new games are added to the Zone, a modest fee may be charged for some Zone Premium games. These fees take the form of daily and monthly Premium Subscriptions. In any case, the existing classic games will always be available for free. At press time, the pricing for Fighter Ace (the Zone's first Premium game) Subscriptions is \$1.95 for a daily ticket (24 consecutive hours), and \$19.95 for a monthly ticket. Keep checking the Zone for current pricing on all Zone Premium games.

You're always notified of charges, if any, *before* you begin playing any game on the Zone. Any software available for download on the Zone is always free. Only connect charges (if any) from your online service or Internet Service Provider (ISP) apply.

Connecting to the Zone

You connect to the Zone using your computer's modem to dial into the Internet, typically using a dial-in connection or a LAN (Local Area Network) connection. In order to play games on the Zone, you must have PPP (Point-to-Point Protocol) access to the World Wide Web. PPP Web access is available through many popular online services such as The Microsoft Network (MSN); America Online (AOL), with AOL version 3.0 for Windows 95 or greater; CompuServe (CIS), with CIS for Windows version 3.0 or greater; as well as through Internet Service Providers (ISPs).

The following step-by-step instructions assume that you already have access to the Web. If you don't yet have Internet access, sign-up for a service such as MSN or AOL, or contact a local Internet Service Provider.



To get to the Zone, enter <http://www.zone.com> in your Web browser.

Warning: You cannot connect to the IGZ if you're using a 16-bit TCP/IP network protocol Dynamic-Link Library (DLL) device driver such as WINSOCK.DLL (Windows Network Socket) from SpryNet, GNN, or Trumpet. The only way to fix this problem is to ask your ISP for a full 32-bit networking .DLL such as WSOCK32.DLL. Be sure to use Microsoft Dial-Up Networking or some other fully compatible 32-bit layer. Many ISPs ship only 16-bit network support so they won't have to ship two products (one for Windows 3.x and one for Windows 95).

If you have problems accessing the Web from your online service or ISP, contact your particular service for help. If you already have an ISP account and require help setting up a Dial-Up Networking connection, check out Appendix C: Step-by-Step ISP Setup, or contact your Internet Service Provider for more information.

If your Internet connection is all sorted out and ready, go ahead and connect to your ISP. Then enter the address below (the "URL") in your Web browser to connect to the Zone at www.zone.com.



Web Browser Compatibility

When you visit the Zone for the first time, the Zone server verifies whether or not you have a Zone-compliant Web browser. If your browser won't work, you're notified and prompted to download a compliant version of Internet Explorer. If you're able to log on to the Zone, you can skip down to the next section, ActiveX Action.

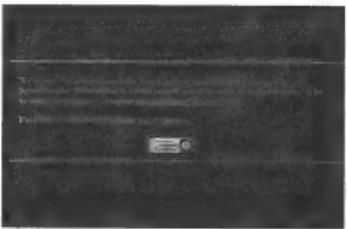
If you already have Internet Explorer 3.0 (or later) installed on your system (which is very likely since Internet Explorer ships with Windows 95 and is included in the software required by several online services), you may be prompted to upgrade the version you have.

In either case, to download and install Internet Explorer:

1. Click the Microsoft Internet Explorer link. You're brought to the Internet Explorer download page.

2. After clicking the link for the version of Internet Explorer you wish to download, you're asked what you want to do with the file. Click "Save it to disk."

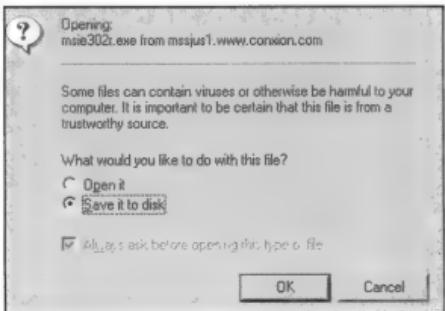
3. Click OK to save the file to disk.
4. A Save As dialog box appears. Note the file name (it should be msie302.exe or something similar)



If you don't have a Zone-compliant Web browser, you're notified with this message.



You can download several versions of Internet Explorer from the Internet Explorer download page.



Save downloaded files to disk for installation.



Note the name of the file being downloaded before clicking on the Save button.



The progress of your file download is displayed.

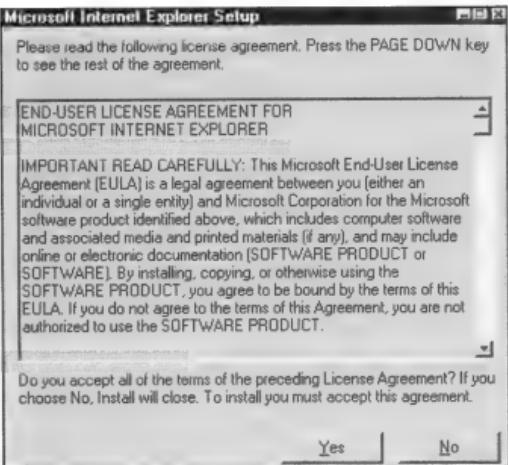
and the Save In folder where you're going to save the file.

5. Click the Save button. This continues the download and saves the file to your hard disk.
6. After the download is complete, close your browser and log off your online service.
7. Click Start, point to Find, and then click Files or Folders to select the folder where you saved the file.
8. Type the file name noted in step four in the Named box.
9. Click Find Now.
10. When the Internet Explorer file is located, it appears in a box. (There may be more than one; use the most recent copy. You can tell the newest file by the date listed under the Modified column.)
11. Double-click the file to install or upgrade your current version of Internet Explorer.

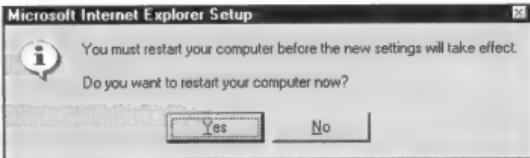
12. The Microsoft Internet Explorer Setup End-User License Agreement appears. Read through it and click Yes if you accept it. Internet Explorer begins installing immediately afterward.
13. When the installation is complete, you're prompted to restart your computer. Click Yes.

To check or adjust your Safety and Security Level settings:

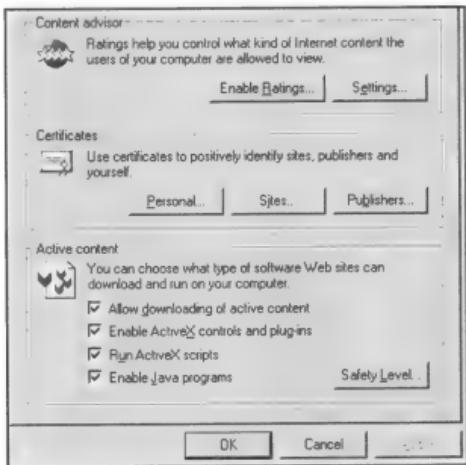
1. Right click the Internet Explorer icon if it's located on your Windows Desktop. (If it isn't, Open Internet Explorer by clicking on Start, Select Programs, and then Accessories. In Accessories, open Internet Tools and select Internet Explorer.)
2. Click Properties, or, if you've opened Internet Explorer, click Options (found under the View drop-down menu selection).
3. In the Active Content section of the Security tab,



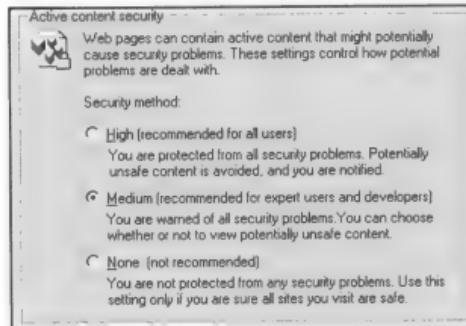
Here's the Microsoft Internet Explorer Setup End-User License Agreement.



Restart your computer to complete Internet Explorer's installation.



Active Content settings are found on the Security tab of Internet Explorer's Properties box.



Internet Explorer's Medium Safety Level setting is the highest you can use to access the Zone.

select and check the correct boxes to enable Allow Downloading Of Active Content; Enable ActiveX Controls And Plug-ins; Run ActiveX Scripts; and Enable Java Programs.

4. Click on the Safety Level button to open the Safety Level dialog box.
5. Click Medium to set your security level.
6. Click OK, and then click OK on the next window to exit.

ActiveX Action

From time to time when you're logged onto the Zone, several pieces of software such as the Internet Gaming Zone Navigation Bar software (the Zone User Interface navigation menu bar) will automatically download. You'll know this is happening when you see "Installing components" on the status bar at the bottom left-hand corner of

Note: At press time, ActiveX installs more Zone software two additional times: when you access Zone Help and whenever you enter a game room for the first time.

Installing components...

This message on the bottom left-hand corner of Internet Explorer indicates that you're automatically downloading the ZoneUI Control software.

Internet Explorer. If you have Internet Explorer 3.02 or later (it features Authentication and Security Certificate notification) already installed, an Authentication Certificate appears. When you click Yes, it installs on your system. For more information about certificates, please see the Authentication and Security Certificates section later in this chapter.

Wanna Cookie?

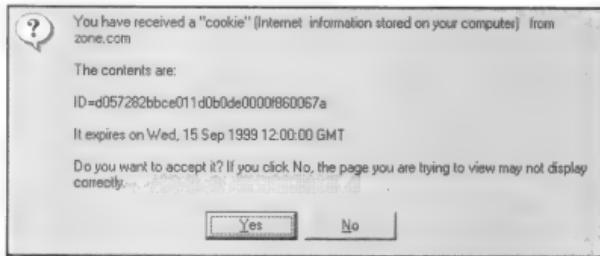
When you access or use the Zone, you might see a Security Alert dialog box stating that you have received a "cookie" from the Zone and asking if you wish to accept it. A cookie is a small Java applet or program that a Web server downloads onto the computer of any newcomer to the site. You get a cookie after you do any of the following:

- Go to <http://www.zone.com>

Note: The Zone software uses ActiveX to work its magic. Make sure that all four options (Allow Downloading Of Active Content, Enable ActiveX Controls And Plug-ins, Run ActiveX Scripts, and Enable Java Programs) are selected in your browser settings under View:Options:Security Active Content, and that your Safety Level is set to Medium. Anything higher causes problems because of the swap of information between the Zone and your computer. If Security settings are too high, information can't get through to your computer—you won't even be notified that information is trying to get through. At the Medium Safety Level, you're at least notified that something is trying to get through.



This Authentication Certificate appears when you download the Internet Gaming Zone Navigation Bar software—if you have Internet Explorer 3.02 or later installed on your system.



When you access the Zone, you might see this Security Alert dialog box.

HTTP (HyperText Transfer Protocol—the communications protocol of the Web) transaction, over the past year or so, there has been a heated debate over cookies.

For example, among other things, a cookie can help the server determine if you've visited before, what your preferences are, your name or handle, and even your passwords. What has some Web Surfers worried is that this action implies that someone is keeping track of you and your actions. While that in itself may not be worrisome to most of us, what's important is how that information is used.

Because the cookie associates itself with the browser and is then stored in the database, it could be considered an invasion of privacy. But it's important to note that only an ID is associated with the browser. Cookies can't be used to extract your email address or other personal data, and they can't scan your hard disk for information. There's no way of determining personal information, unless, of course, you fill out a form and submit it.

Whatever information a cookie passes along to the server is stored in the Web site's log file or the host company's database—and they already have information on which pages you've accessed, when they were accessed, and any other information you provide to them. That information isn't available to other sources unless there's a hacker on the channel—and that's a security concern with or without cookies.

So to sum it up, cookies are not evil, secretive things, dying to reveal everything about you. Cookies are just a means for Web developers to gather information without bothering users.

- Click Play Games Now

- Select a game from Games List

- Enter a game room.

Although a cookie is really nothing more than a few lines of text that are part of an

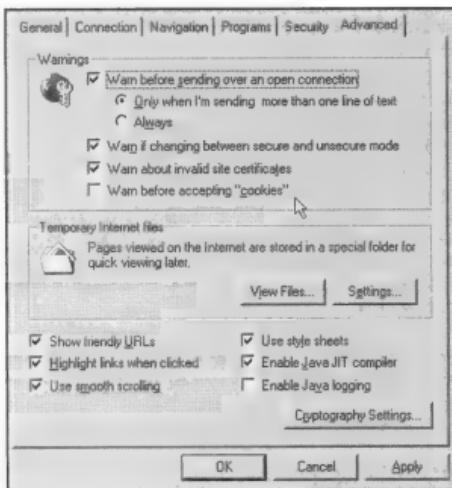
Turning Off Cookie Security Alerts

Cookies are meant to be invisible. You're supposed to be able to traipse all over the Web collecting these things without ever knowing about them. But because of the concerns some people have about cookies, Internet Explorer is set, by default, to notify you with a Security Alert dialog box before your system can accept any cookies. However, this can be quite annoying, and you might wish to turn off this feature. To do so, follow these steps:

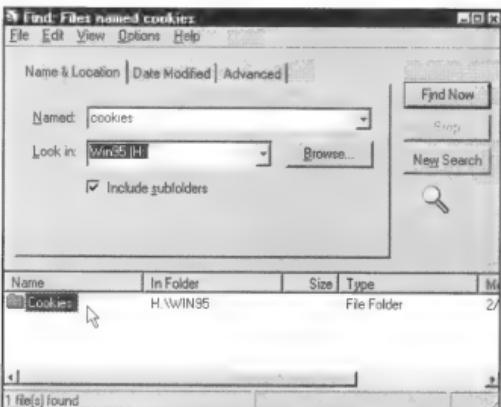
1. Right click the Internet Explorer icon if it's located on your Windows Desktop. If it isn't, Open Internet Explorer by clicking on Start. Select Programs, and then Accessories. In Accessories, open Internet Tools, and then select Internet Explorer.
2. Click Properties, or if you've opened Internet Explorer, click Options (found under the View drop-down menu selection).
3. Clear the check box in the Warnings section of the Advanced tab beside "Warn Before Accepting 'Cookies'."
4. Click Apply, and then click OK.

Are There Consequences for Not Accepting Cookies?

If you're willing to put up with a few (sometimes *many*) Security Alerts, leave Warn selected and just don't accept them. You can still participate on the Zone as a full member, but be aware that you'll be constantly warned about incoming



Clearing the "Warn Before Accepting Cookies" check box turns off Cookie Security Alert messaging.



Double-click on the folder named "Cookies" to access your cookie collection.



Your cookie folder contains all the cookies you've acquired during your Net travels.

cookies. Remember that this isn't because the Zone is trying to send you thousands of cookies; it's because every time the Zone asks for a cookie and you don't have one, it tries to send one to you.

Checking the Cookie Jar

Your browser stores cookies in its cache. You can easily check how many cookies you've accumulated in your Web travels by looking in the cookie folder of Internet Explorer. To check your

cookie folder:

1. Click Start, point to Find, and then click Files or Folders.
2. Type *cookies* in the Named box.
3. Click Find Now.
4. Double-click on the folder named Cookies and your cookie folder opens.

Inside this folder are the cookies you've picked up on your Net travels. You can selectively delete any cookie or empty your entire cookie folder if you wish. There's no penalty for deleting any or all of your cookies other than having to access a previously visited site (whose cookies you've deleted) as a new visitor.

To delete a specific cookie, click on the cookie you wish to delete and press the Delete

key. To delete all your cookies, press CTL + A to select all the files in the cookie folder, and then press Delete to toss them away.

Here are some facts about cookies:

- Your cookie files can contain no more than 300 cookies and no more than 20 per domain name.
- Once the limit is reached, cookies are automatically deleted from the folder, from the oldest to the newest.
- Cookies can consist of no more than 4096 characters. Extra characters are simply lopped off.

Joining the Zone

The first order of business is to Sign Up, because in order to access Zone features and play games, you need to download the Zone software—and you can't unless you're a Zone member. In a nutshell, you must join the Zone *and* have the software in order to do anything on the Zone.

When you first connect to the Zone, you're welcomed by the Zone's home page. Click on the "New Player Signup" link to move to the "Sign up here for the new Internet Gaming Zone!" page.

The actual signup process is very simple. Just fill out a form and click on the Submit button at the bottom of the page. While you're *required* to provide only three things (a member ID, email address, and password), filling out the rest of the information on the form helps Microsoft determine just who's playing on the Zone and helps the company bring the kinds of



Click on New Player Signup to join the Zone.

Sign up here for the new Internet Gaming Zone!

Please provide the following information, then click **Submit** at the bottom.

Note: Since the existing Zone has a database of more than 300,000 members, we cannot guarantee you will be able to continue using your old Member ID for the new version of the Zone. We apologize for the inconvenience.

Member ID:
Password:

E-mail address:
Re-Enter Password:

May we send you e-mail about Zone events? Yes No

Please help us provide you with better service by filling out the optional information below. All information will be kept confidential.

Signing up is a simple process of filling in this form and clicking on the Submit button when you're finished.

Tip: OK, the Zone membership application form supports both uppercase and lowercase letters in the name field. But keep your handle as simple as possible, something that's easy to remember for both you and your fellow players. If your handle is easy to remember and type, you'll be more accessible—easier to call while in the heat of battle and so on.

However, you should also try to pick something that won't be confused with someone else's handle. Maybe a million Zoners out there want to be "Mr. Big," but you can be creative. Underscores (_), for example, are supported in Member IDs. They, and other clever spelling or punctuation, can give you a wider range of name selections.

the rest of your life. Just below the section asking you for a password is a box that asks "May we send you email about Zone events?" Click your choice, and it's honored.

The option of whether you want to be notified by email about Zone events defaults to Yes. So make sure the radio button reflecting your choice is selected if you don't want to receive Zone news.

games to the Zone that Zoners want to play. In the next few sections are some tips and pointers about joining the Zone that you might want to consider.

Member IDs

When you first sign up as a member, you must enter a Member ID; this becomes your Zone handle. From this point on (unless you re-register under another name later and enter the Zone with that ID), everyone on the Zone will know you by your handle. Choose it carefully!

Email Addresses

The second piece of required information for your Zone membership application is your email address. Note that this doesn't automatically condemn you to Zone marketing spamming for

Passwords

Finally, you're asked to provide a password with a minimum of four characters. A password secures your Member ID, protecting you so no one else can log onto the

Zone using your handle. Enter your password twice to assure your password was entered correctly. Unlike your handle, passwords *are* case sensitive. Unless you use the same exact upper- and lower-case letters when you sign on, the Zone won't recognize it.

As with all valuable things, keep your Zone password in a safe place. However, if you ever forget it, you'll be able to have your password sent to the email address you provided during signup.

Here are some general suggestions for choosing and using passwords:

1. Choose something easy to remember.
2. Your password should be different from your Member ID.
3. Don't use your phone number, Social Security number, address, or real name.
4. Select something not found in the dictionary.
5. *Never* give out your password.

Note: *No one from the Zone will ever ask you for your password! If anyone on the Zone asks for your password, DO NOT reply. Make a note of the perpetrator's Member ID and notify a Zone Sysop or MVP by ZoneMessage.*

Zone Member Responsibilities

As a member of the Zone community, you have a responsibility to help keep the Zone a fun place for everybody. Microsoft and the system operators want all the players to enjoy the exciting games and great company in the Zone. All they ask is that you be considerate of your fellow Zone Members. All members are expected to follow these simple rules and policies:

- Don't use profanity or sexually explicit language, either in the Zone or on its bulletin boards.
- Don't engage in personal attacks or fighting, which can be very disruptive.
- Don't use racial, ethnic, sexual, or religious slurs.
- Be considerate of members playing games at ZoneMatch tables. Disruptive behavior—such as revealing cards, making lewd comments, or outrageous bidding—may lead to your removal from the Zone. You may engage in game play, conferences, and ZoneMatch chats on the Zone, as well as downloading and uploading files. However, your uploaded files, and your participation in conferences and chats, are subject to review, modification, and deletion without notice by the forum manager responsible for the Zone.

Zone policies relating to online conduct, uploaded files, conferences, bulletin boards, and other matters are posted on the Zone. The Zone reserves the right to change its policies at any time.

Files uploaded to a BBS may be subject to posted limitations on usage, reproduction, and/or dissemination. You're responsible for adhering to these limitations if you download them.

Downloading the Zone Software

As we mentioned earlier, before you play any Zone game for the first time, you need to install the Zone software. For your convenience, the Zone software is available in three versions that you can download directly from the Zone. They are:

Classic Install: This version contains the basic Zone software for playing all the Classic Zone board and card games.

Retail Install: All the basic Zone software, plus the components required to matchmake retail games that you've purchased separately such as Flight Simulator 98 and Monster Truck Madness.

Complete Install: The basic Zone software, all the Classic Zone board and card games, plus the matchmaking software found in the Retail Install are included in this version.

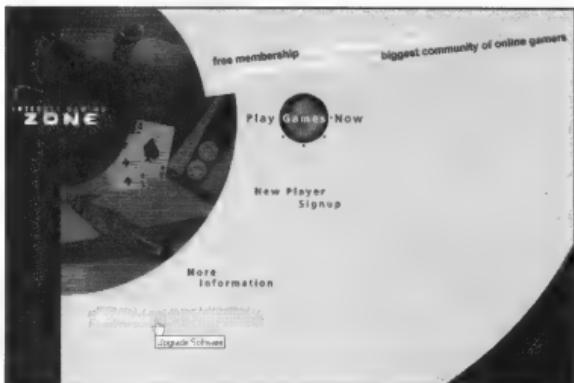
If you plan on playing only the Classic Zone board and card games, the Classic Install takes less time to download because of its smaller size.

Likewise, if you're interested in only matchmaking retail games, downloading the Retail Install provides similar benefits. But to experience both Retail and Classic Zone gaming, the Complete Install is your best choice. Although it may take a little longer to download than one of the other installs, the download time is shorter than if you downloaded both of the other installs separately.

If you've got an older version of the Zone software on your system, the Zone prompts you to download a small software update rather than one of the other installs. Regardless, the downloading and installation processes are the same.

To download and install the Zone software:

Note: Some game software and multiplayer patches or upgrades (other than the versions and trial versions provided on the Zone) must be downloaded from the publisher or purchased from a software vendor. This process is described later in this chapter.



Click the Upgrade Software link and move to the Zone software download page.

Tip: If you're already a Zone member and want to play from a different computer than the one on which you signed up, all you need to do is download the Zone software onto that machine.

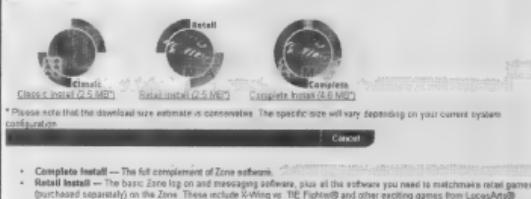
Install Zone Software

- If this is your first time visiting the Internet Gaming Zone, you'll need to [sign up](#) before you can install the Zone software!
- I don't want to install anything right now. [Get me out of here!](#)

Note: Jumping to another page before the download is completed will cancel the download.

Type an install directory and click your install choice.

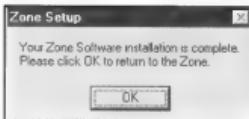
Program Files\Microsoft Internet Gaming Zone



Check the recommended install directory and click on the install version of your choice.

free hard-disk space. If not—or if you'd rather install the Zone software somewhere else—type the location in the Install Directory box.

4. Next select the version of the Zone install you'd like by clicking on the corresponding link.



When you see this message, the Zone Software will be installed on your system.

5. Accept any Authentication Certificates that may appear by clicking on the Yes button. For more information on Authentication Certificates, see the Authentication and Security Certificates section of this chapter.

6. You're notified that Zone Software installation is complete. Click OK.

Authentication and Security Certificates

Every time you download authenticated software with Internet Explorer 3.02 or later, you receive an Authentication Certificate. There are two different types of

1. Go to the Zone at <http://www.zone.com>.
2. Click the Upgrade Software link.
3. For most people, the Zone's recommended install directory, located near the middle of the Install Zone Software page, will have at least six megabytes of

security certificates. A personal certificate is one you'd send to a client-authentication server that requires a certificate. For example, some servers require personal information such as your user name and password. This certificate is a form of guarantee that indicates to the server that you are who you say you are.

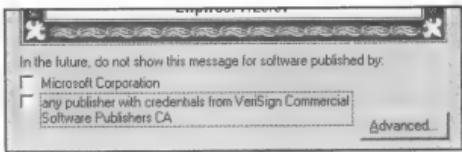
A Web site certificate is used when a secure Web site (the Zone in this case) sends your copy of Internet Explorer a certificate that provides certain information about security for that Web site. Certificates are issued to a particular organization for a specific period of time. When you open that organization's Web site, Internet Explorer verifies that the Internet address stored in the certificate matches the site to which you're currently connected, and that the current date precedes the expiration date. If not, Internet Explorer displays a warning.

So essentially, a Web site certificate contains information used for verifying that the site is secure and genuine, ensuring that no other Web site can assume the identity of the original secure site.

Of course, a certificate can't guarantee absolute security for downloads. Authenticode doesn't check to see if a code is free of bugs or malicious intent (viruses). The concept is that you can choose whether to download software based on your knowledge of and trust in a particular software publisher. Just as you now know who published software from a retail store, you absolutely know who is responsible for the code that you downloaded and ran. To verify a certificate, click each link highlighted on the certificate before relying on it.



This is a Web site certificate sent by the Zone.



You can disable authentication certificate notifications on two levels—by individual publisher or by any publisher with VeriSign credentials.

selected publisher. To disable the current publisher (in this example, Microsoft), click the “Microsoft Corporation” box. If you enable this option, it means you won’t be notified if you download software from the particular publisher listed, and that publisher has a valid certificate. Regardless of the site from which you’re downloading, if the download has this publisher’s certificate and it’s valid, you’ll download it without notification.

Any publisher with VeriSign credentials: Certificates won’t be displayed if the publisher has credentials from VeriSign Commercial Software Publishers CA. To disable any notification from a VeriSign-credentialed publisher, click the Any Publisher With Credentials From VeriSign Commercial Software Publishers CA box. This option requires you to be a little more trusting. With it enabled, you aren’t notified that you’re downloading software; instead the publisher sends you a valid VeriSign certificate. So any publisher at any site can send you software as long as they have a current valid license with VeriSign, and the software will be accepted without your notification. The danger of such trust is inversely proportional to how much you trust VeriSign.

Downloading and Installing Macromedia Shockwave Flash Player

You might have noticed that Macromedia Shockwave Flash Player was listed in our Zone Requirements list, but this section contains no instructions on how to download it. That’s because Shockwave Flash is an ActiveX application. This means that once you visit a page that requires this application (or you download

Turning Off Certificate Warnings

If you’d rather not see authentication certificates in the future, you can disable notifications on two levels:

Publisher dependent: Certificates won’t be displayed from the

it from www.macromedia.com), you see "Installing Components..." on the status bar of your browser. This means that it's downloading the Active-X application. Once it has finished downloading, you see an Authentication Certificate from Macromedia. Simply click Yes, and the application installs.

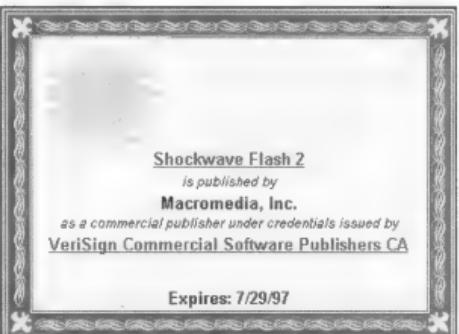
Downloading Game Software

At this point, you've downloaded the minimum software you need to enjoy the most basic Zone gaming. At some point, you'll most likely want to move beyond the basics. You then need to download and install additional software.

As we've said, you can play four types of games in the Zone: Classic, ZoneMatch, ZoneLAN, and Zone Premium. Be aware that the software you must download and install varies with each type of game. Here are brief descriptions and explanations of what you can expect:

Classic board and card games, such as Chess or Spades: Classic game software is free with Zone membership, and it's downloaded along with the Classic Install and Complete Install Zone Software packages.

Retail ZoneMatch games, such as Microsoft Hellbender: You can buy the software in a retail store or download a Trial version from the game room. However, you must install the game on your hard drive before you can matchmake a game.



This Authentication Certificate from Macromedia notifies you when the Shockwave Flash Player is ready to be installed.

Note: When playing retail games in the Zone, make sure both you and your opponent have installed the same version of the game on your hard disks. Members using Trial versions should play only against other players with Trial versions. This is because the Trial versions are invariably limited in some fashion, although how the Trial versions are limited varies from game to game. Common limitations are fewer game levels or some sort of time limit. But the free Trial versions allow you to try out a game so you can decide whether to spring for the full retail version.

ZoneLAN games, such as Descent: You must have the game software on your hard disk before you enter the ZoneMatch room to matchmake or play. ZoneLAN MS-DOS-based multiplayer retail games are described in the ZoneLAN room as well as in Chapter Two of this book.

Zone Premium games: Fighter Ace is the first of the Premium games to be offered on the Zone, and as you're probably aware, the entire back portion of this book is devoted to Fighter Ace.

Multiplayer Software Patches

Some retail games require an upgrade patch or additional software for Internet play. For Zone-supported games (such as Close Combat, Monster Truck Madness, and Golf version 3.0), you can download the appropriate patch from its respective game room. For other retail games (such as the games playable in ZoneLAN), you must obtain the patch software—if it's required—from the game publisher before the game can be played on the Zone.

For information on where to find upgrades for non-directly supported Zone games, check the documentation that came with your game. It usually points you to the publisher's Web site or BBS.

Logging onto the Zone

Now that you're equipped with all the essential Zone software and you're a registered Zoner, you're ready to log onto the Zone. Just as before, access the Zone at www.zone.com.

If you haven't saved the Zone as a favorite place within your Web browser, bookmark it (or any other place like a Zone game room) like this:

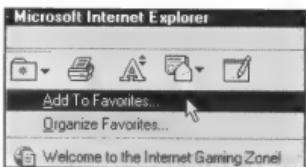
1. Access the site, Web page, or room you wish to bookmark.
2. Click the Favorites folder on the Internet Explorer toolbar.
3. Click "Add to Favorites" on the drop-down menu window.
4. Enter a new name for this bookmark if you like.
5. Click OK

The next time you want to move to this site, Web page, or room, you can simply click the Favorites folder and select the room to which you wish to move.

Once your bookmark is in place, you can connect and go to the Zone Welcome Screen. Click on Play Games Now, and you're transported to the Zone's main navigation area. However, before you actually get there, you're asked to sign in.

Sign In, Stranger

To sign onto the Zone, enter your Member ID in the box labeled Member Name, and then enter your password in the box below. If you'd like to have the Internet Explorer enter your password automatically the next time you sign onto the Zone, check the Remember My Password box. Finally, click OK and you're on your way!

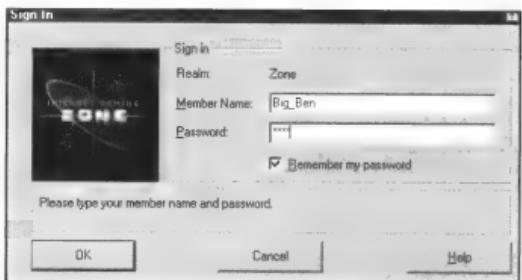


Adding bookmarks allows you to move directly to your favorite Zone games or other Internet sites.

Improving Connection Performance

If your communications response time doesn't meet the Zone's minimum communication quality requirements, the Zone's logon server terminates your connection. The Zone requires a continuous two-way connection to your computer. If there are excessive lag (system delay) problems in the network, you'll have problems staying connected. If this happens, you'll receive a "Connection to server has been terminated" message.

At this point, your options are to log onto the Zone again and try another game room (some game rooms use different servers, and the connection to one may be better than another), or try to improve your overall connection performance. Whether you connect to the Zone via an online service or an ISP, this section covers how to solve common problems and how to improve your online connections. There are even tips on how to evaluate your



Sign onto the Zone by entering your Member Name and Password and you're on your way.

ISP's performance, which is handy if you're shopping around for ISPs. After all, subscribing to an ISP with the cheapest price isn't always the best way to go. Finding the cheapest ISP with the best connection performance is!

Disabling Call Waiting

If your telephone line has a call-waiting service and you don't disable it while connected to the Zone; you'll lose your connection every time there's an

Tip: *Typical disable codes for call waiting are *70 for touch-tone service and 1170 for rotary service—although the codes may be different in some areas. Check with your local phone company for the appropriate deactivation code to use in your service area.*

incoming call. To disable call waiting, enter the disable code in front of the telephone number of your online service or ISP. But don't forget to reactivate call waiting when you sign off and your modem hangs up.

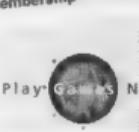
Baud Rates

In technical terms, the baud rate is the number of times the communications line changes states each second. (BPS or Bits Per Second ratings are sometimes used interchangeably with baud rates even though they aren't the same measurements.) Most of the time, faster baud rates yield better performances. However, it's a misconception that faster baud rates *automatically* produce better online performances.

This apparent contradiction exists because higher baud rates are more prone to errors on less-than-perfect telephone lines. The crackling, static, hum, background talking, and background dialing of line noise causes erroneous data to be re-sent. Sometimes this process of re-sending data actually nets a worse performance than would be achieved at a lower baud rate. So if you aren't able to rectify line-noise problems, try connecting at a lower baud rate. But before you resort to that, you might be able to fix your line noise problem.

Line Noise

Connection and performance problems such as warping and unexpected disconnects are often caused by line noise. If you have line noise, you'll have problems with any online game or activity. Fortunately, line noise is often caused by the player's own phone lines.



To diagnose and correct line noise problems do the following:

1. On a regular telephone (not a cordless) connected to your modem line, press any single number. The dial tone should go away and you should hear silence—no static, no hum, *nothing*.
2. If you've got line noise, the problem could be in the phone itself, so try more than one phone to see if the character of the noise remains the same.
3. You should also try the same test at another phone jack if one exists. This helps you determine if there's a problem with your first extension's inside wiring.
4. When you've determined that your line noise isn't because of your telephone and extension wiring, contact the phone company and ask them to sweep the line.
5. If you've gone through all these tests and you're still experiencing problems on a regular basis, your local node might be in bad shape. Try a different one to see if that helps. The ultimate test—although a costly one and not always available to every online service or ISP—is to try the surcharged 800 node numbers. These are usually kept in pristine shape and, as a result, produce the best connections.

PING

The TCP/IP acronym PING stands for Packet INternet Groper. It's a small network message sent by a computer to another computer on the Net to check for presence and network delay time. Unless you're able to connect directly to the Zone (which is highly unlikely), your network connection has to go through (or *hop* through) several other servers to connect you to the Zone.

Each connection adds a slight loss in your connection performance, and these delays are known as network latency. For game players, latency most commonly manifests itself as a delay between your keystrokes and the on-screen action. Naturally, the lower your PING time, the better your Net and Zone game performance.

If you use a dial-up connection to reach the Net, check your PING times by following these instructions:



The lower your PING times, the better performance you'll experience on the Zone.

1. Establish the connection by double-clicking on the correct entry in the Dial-Up Networking folder or however you access your ISP.
2. Now open an MS-DOS Prompt window, (or a Command Prompt if you're at an NT machine).
3. Type "PING ZONE.COM"

This command sends a stream of data packets (groups of information) to the Microsoft Internet Gaming Zone server. If you get four replies, your TCP/IP connection is working. The numbers listed after "time=" are the response time of your connection to the Zone server in milliseconds. Naturally, lower times equal faster performance. However, note that PING times can vary based on network loads, so you may experience better performance during certain times of the day.

Trace Your Route

When evaluating ISPs, a test that some Net-savvy Zone members use is TRACERT. This utility traces the number of connections (a.k.a. "routing")



TRACERT can trace the number of connections between your computer and the Zone.

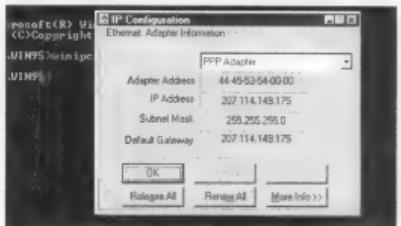
between your computer and a specified server. With all things being equal, if one ISP has fewer connections between you and the Zone, it performs better than ones with more connections do.

To trace how many connections your ISP connection requires to hook up with the Zone, just do the following:

1. Establish the connection by double-clicking on the correct entry in the Dial-Up Networking folder (or however you access your ISP).
2. Open an MS-DOS Prompt window, (or a Command Prompt if you're at an NT machine).
3. Type TRACERT ZONE.COM

The displayed list shows the first connections (up to 30 hops) necessary to get from your computer to the Zone. Of course, the fewer connections you must go through to reach the Zone, the faster your connection will be. Note that this command may not work if your workstation is located behind an Internet firewall. Congratulations! You're now officially Zoned and ready to start enjoying the best games on the Net. Chapter Two introduces the services available on the Zone.

Tip: If neither PING or TRACERT works, open the Run dialog box and type WINIPCFG (it stands for "Windows IP Configuration"), and then hit Enter. (If you're running NT, type IPCONFIG.) The WINIPCFG dialog box appears. Click on More Info and get your ISP on the phone to step thorough the settings. Most likely your IP address or DNS settings are entered incorrectly, or you need a newer version of WSOCK32.DLL (32-bit WinSock).



If neither PING nor TRACERT works, WINIPCFG can help you isolate Zone connection problems.



IN THE ZONE

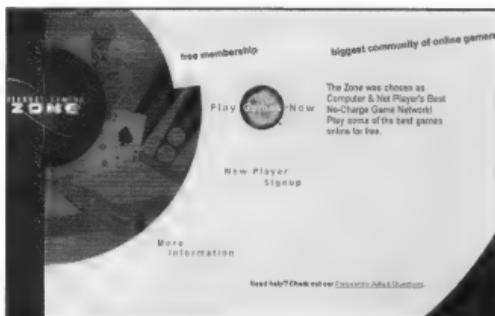
Now that you're officially a Zone member, it's time to wade through its wealth of options and services. In this chapter, we take you on a little tour to ease your indoctrination into the Zone, covering each feature the Zone has to offer, as well as providing instruction on how to use the various services.

Welcome to the Zone!

The uninitiated might naturally think that the Zone is *only* about multiplayer gaming—but nothing's further from the truth. Since it's difficult to describe the Zone, we've broken it down into smaller sections. Not only does this aid our tour, but it can also help you gain valuable insights into the Zone's numerous features and services.

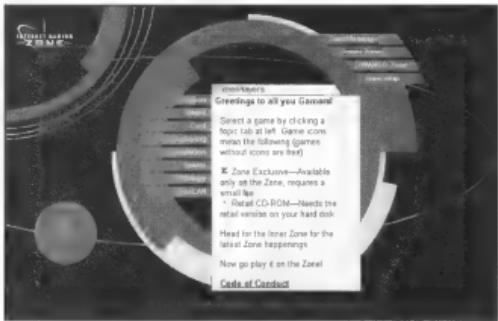
The basic Zone environment can be broken down into two aspects—gaming (of course) and social activities. Tying both together are the Zone services, which is where we begin the tour.

Note: Members are always welcome throughout the Zone, but some of the Zone's features are available only to Zone Members who sign in.



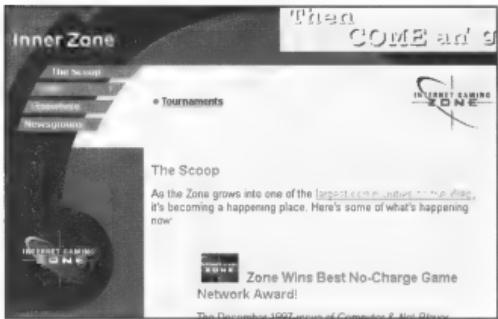
Main Navigation Area

Once you've signed in, you find yourself in the Zone's Home Page, called the Zone's Main Navigation Area. This is just a fancy name for the Zone's main menu. From here,



This is the Zone's Main Navigation Area, or simply the main menu.

Tip: If any of the Zone's menus or screens don't download completely, simply click on the Refresh button on your browser's toolbar. If that doesn't work, close your browser, restart it, and then log on to the Zone again.



Check the Inner Zone often for the latest Zone-related news and events.

you can access all the Zone's activities and services by clicking on the appropriate navigation button(s) (or "tabs") with your mouse. Getting around the Zone couldn't be simpler!

The buttons in the Main Navigation Area are:

Games List tabs: Use these menu tabs to choose a category of game to play.

Zone Message: Send messages to your friends almost anywhere in the Zone with this button. This option is covered in Playing in the Zone.

Inner Zone: View Zone-related news and events in this area. Remember that this is strictly information on the Zone itself. Visit individual game rooms for information on specific games.

DWANGO-Zone: This button takes you to more information about the DWANGO-Zone—a premium service exclusively available through the Zone that offers a higher quality low-latency connection than what's possible over normal Internet connections.

Zone Help: Access Zone Help, the Zone FAQs, and the Knowledge Base with a click of this button. It's covered in "Getting Help."

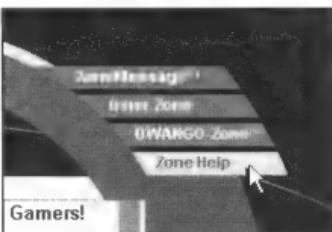


The menu offers a lot of options, and the best way to get your Zoner feet wet is just to dive right in. But game-service novices might benefit now from a quick look at the "Getting Help" section, so that if you get stuck somewhere or have a question, you'll know where to find the answers you want.

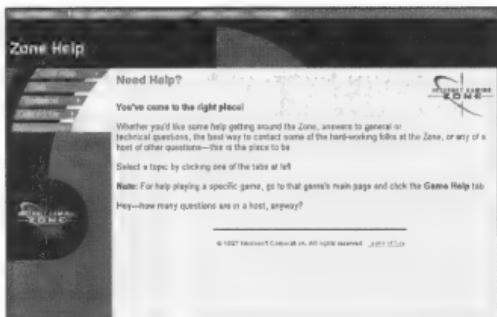
Getting Help

While the Zone was designed to be as user-friendly as possible, sometimes things just go awry despite the best planning and intentions. Fortunately, help is just a mouse-click away if you ever get stuck. The basic ways to find help on the Zone are either through Zone Help (which includes FAQs and the IGZ Knowledge Base), the Zone Newsgroups, or Sysops and MVPs. (Sysops are the system operators who keep the Zone servers running, and MVPs are volunteers who help make your visit a pleasant one. We'll talk about MVPs more later.) You also can access Help while inside a game room, as you will see in the Game Room section of this chapter.

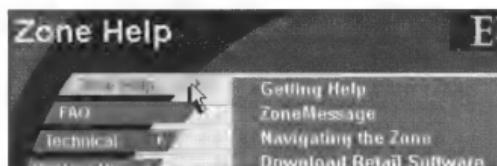
Anytime you click the Zone Help tab from the Main Navigation Area or any of the menu bars found throughout the Zone, you're brought to the Zone Help screen, where several Help options are



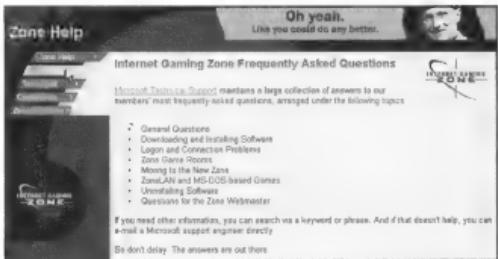
Help is always just a mouse-click away on the Zone.



The Zone Help screen has several help options.



To find general information on Getting Help, how to use ZoneMessage, Navigating The Zone, and Downloading Retail Software, click on the Zone Help tab.



Click on the FAQ tab on the Zone Help screen menu bar, and then click the Technical Support link to access the FAQ screen.

FAQ is an acronym for "Frequently Asked Questions." This valuable resource answers the most common concerns and issues about the Zone in a question-and-answer format. To access the Zone FAQs, click on Zone Help, and then click the FAQ tab on the Zone Help screen menu bar. Now click on the Microsoft Technical Support link. On the Microsoft Internet Gaming Zone Frequently Asked Questions screen, click on the topics or questions in which you're interested, and the Zone takes you to the answer. It really is that simple.



Click on the topics or questions on the Microsoft Internet Gaming Zone Frequently Asked Questions screen and you're taken to the answer.

located. Let's take a closer look at what each has to offer.

Zone Help

Click the Zone Help menu tab to access the Zone's help system. In addition to general information on Getting Help, you can learn more about using Zone- Message, Navigating The Zone, and Downloading Retail Software.

Just the FAQs, Ma'am

FAQ is an acronym for "Frequently Asked Questions." This valuable resource answers the most common concerns and issues about the Zone in a question-and-answer format. To access the Zone FAQs, click on Zone Help, and then click the FAQ tab on the Zone Help screen menu bar. Now click on the Microsoft Technical Support link. On the Microsoft Internet Gaming Zone Frequently Asked Questions screen, click on the topics or questions in which you're interested, and the Zone takes you to the answer. It really is that simple.

Microsoft Knowledge Base

But as handy as FAQs are, it can be time consuming to find a solution to your problem or an answer to your question. Speed things up by using the Search option of the Zone's Microsoft Knowledge Base.

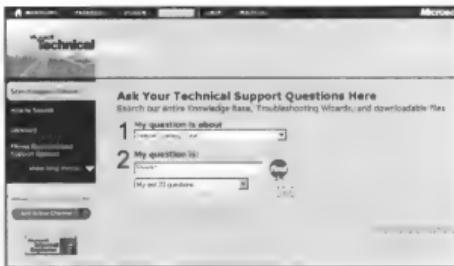
Accessing the Knowledge Base is similar to accessing the Zone FAQs (in fact, you can access the Knowledge Base directly from the FAQ screen). First click on Zone



Help, and then click on Technical Support from the Zone Help screen menu bar. Now select

Troubleshooting from the sub-menu that appears, and then click on the Microsoft Support Online link. When the Microsoft Internet Gaming Zone Frequently Asked Questions screen appears, click on the words Search Support Online in the upper left-hand corner of the screen. Select Internet Gaming Zone from the Search Support

Online screen, and then type in a subject, keyword, or question in the box labeled "My question is:". After entering your query, click on Find.



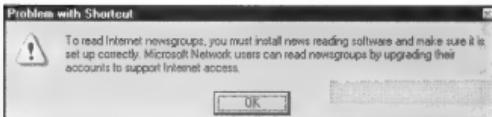
Searching the Microsoft Knowledge Base can net faster answers to your questions than a FAQ.

Microsoft Knowledge Base Searching Tips

At its simplest, a query can be just a word or a phrase. However, you can expand the focus of your query for more complete results. Here are some tips to get the most out of the Knowledge Base search engine:

- Place "AND" between all keywords to find articles containing those keywords. For example, type "print AND merge" to find all articles containing both the words "print" and "merge."
- Use a well-placed asterisk to look for words with the same prefix. For example, type "key*" to find "key," "keying," "keyhole," "keyboard," and so on.
- Use two asterisks, and you can search for all verb forms of a word. For example, type "sink**" to find "sink," "sinking," "sank," and "sunk."
- Search with the keyword "NEAR" (rather than AND) for words close to each other. For example, you could type either "system AND manager" or "system NEAR manager" to look for the words "system" and "manager" on the same page. But with NEAR, the returned pages are ranked in order of proximity; the closer together the words are, the higher that page's rank.
- Put quotation marks around keywords if you want the Search Server to take them literally. For example, if you type the query "system near manager," the Server looks for that complete phrase. But if you type the same query without the quotation marks, the Server searches all documents for the individual words "system" and "manager" on the same page.
- Refine your queries with the "AND NOT" keywords to exclude certain text. For example, type "surfing AND NOT the Net" to find all instances of "surfing," but not "surfing the Net."

Note: When you see the notice "You are leaving Microsoft's site," it means the sites or newsgroups accessed beyond this warning aren't under the control of Microsoft or the Internet Gaming Zone. Therefore the Zone can't make any representation concerning the content of those sites. This also indicates that Microsoft doesn't endorse of those upcoming sites. The Zone provides those links only as a convenience to its members. With that said, always be wary of what goes on outside the Zone. Just as elsewhere on the Net, use common sense and normal precautions when visiting any new site.



You're notified if you need to download the newsgroup software.



Newsgroup software for Internet Explorer can be found on the Microsoft Internet Explorer Internet Mail & News site that's linked to the Zone Newsgroups screen.

The Zone Microsoft Knowledge Base search engine does the rest.

Zone Newsgroups

The Zone's Newsgroups connect Zone members by providing a forum to post messages, ask questions, or list comments. These forums are actually USENET newsgroups. Newsgroups are collections of Zone members' email messages and sysops' postings about a specific topic. They're particularly useful for quick answers to common problems and are also one of the best places to stay up to date on Zone activities and changes.

The Zone's Newsgroups are accessed from the Inner Zone or Zone Help screens. Click on the Newsgroups tab on the Inner Zone's menu, or from Zone Help click on Technical or Contact Us, and then click the Newsgroups tab from there. Now click on the Newsgroup link that you desire on the Newsgroups Keep Zone Members Up-to-Date screen, and you're taken to your selected newsgroup.

If you haven't signed onto a newsgroup before, or if you didn't download or install the full version of Internet Explorer, you might need to download the newsgroup



software. Download this software from the Microsoft Internet Explorer Internet Mail & News site; there's a link to this site on the Zone Newsgroup page.

Currently there are four newsgroups listed in the Zone's Newsgroup section:

Internet Gaming Zone Newsgroup: In this newsgroup, you can share information about ZoneLAN games, cheat codes, problems, and other issues related to the Zone.

Microsoft Games Newsgroup: This newsgroup contains good advice and tips from people who play Microsoft games, both on and off the Zone.

Internet Gaming Zone ZoneLAN Newsgroup: Check this newsgroup for news, work-arounds (unofficial or non-standard ways to make things work), and updates by Microsoft on the status of known bugs with games used with ZoneLAN.

Internet Gaming Zone Fighter Ace Newsgroup: This is the newsgroup to read for the latest tips, news, and other information about Fighter Ace.

Tip: If any of the Zone's menus or screens don't download completely, click on the Refresh button on your browser's toolbar. If that doesn't work, close your browser, restart it, and then log on to the Zone again.

Note: Some Internet Service Providers (ISPs) don't provide access to newsgroups or may charge you for newsgroup access. If you can't connect to the newsgroups listed, contact your ISP to see if the service is available to you. If your ISP doesn't provide access to newsgroups, send email to the Zone Webmaster (ZMaster) with the name of your ISP and how to contact it. Zone officials might be able to help you get connected.

Sysops and MVPs

Zone Sysops (System Operators) and MVPs (Most Valuable Players) are volunteers recruited from the Zone membership to help with problems. Their role is to encourage a friendly feeling of community, to enforce the rules, to answer any questions, and to guide you and other Zone members. Sysops can be identified by a "+" (plus) sign before their names, and MVPs by an "*" (asterisk) sign. Send them your questions; they'll be happy to help.

Tip: Before approaching a Zone Sysop or MVP with a question, be sure to look it up in the FAQs—most general questions are answered there. Checking first saves everyone time in the long run, and might save you some embarrassment as well.

*brent1nt
GAMER

Zone MVPs are
designated with this *
(asterisk) sign next to
their Member ID.

So You Wanna Be an MVP?

The Zone is always looking for MVPs, and new Sysops are usually promoted from the MVP ranks. The qualities sought after in MVP candidates include maturity, leadership skills, and experience. Candidates must also meet the Zone room and coverage requirements as well. Room requirements refers to the limited number of MVPs allowed per game room. And coverage refers to the hours they work—the times that are “covered.”

If you’re a responsible, mature, regular player and are interested in helping out in the game rooms as an MVP, send email to the Zone at www.thezone.com or email Zmaster@microsoft.com. Include your name, email address, the game rooms you’d like to cover, the times you’re usually in the Zone, and the reasons you’d like to be a Sysop. Your name will be added to the MVP candidate list, and you’ll be contacted by email if and when you’re selected.

Since literally hundreds of members volunteer for MVP and Sysop duties every month, don’t be offended if you’re not immediately contacted. The programs are slowly expanding, and many potential MVPs are being evaluated daily.

The best thing you can do to increase your chances of being selected is to heighten your visibility by helping out other gamers. A Sysop might notice your contributions and bring your name to the top of the candidate list.

Reporting Problems

If you need to report problems with other members, use ZoneMessage to tell a Sysop about it. ZoneMessages aren’t visible to other members in the room, so address your comment to anyone with a “+” (plus sign) in front of his or her name. If your problem is with another member, give the Sysop that person’s ID. And if you wish to speak privately, ask the Sysop to join you at a game table.

But remember that game-table conversations aren’t private unless you disable kibitzing. We’ll discuss that and other chat options in the “Learn to Play the Zone Way” section of this chapter.

The Sysop will mediate the problem, and he or she has the authority to remove troublesome members from a game room. Of course, it usually isn’t necessary to kick people out—the troublemaker normally gets a reminder about Zone rules and etiquette, and everyone gets back to the serious business of gaming.



Using ZoneMessage

ZoneMessage allows you to chat privately or send real-time messages to other Zone members, which comes in handy for things like inviting a friend to meet you in a specific ZoneMatch room.

To send a ZoneMessage:

- Click on ZoneMessage from any of the menus or double-click on the Zone tray icon located in the right-hand section of the Windows 95 taskbar.
- Type the name of the Zone member to whom you wish to send a message, or select from a list of names by clicking the arrow to the right of the Player Name box.
- Type your message in the text box.
- Click Send.



Privately chat or send private notes to other Zone members with ZoneMessage.

Note: Your message won't be delivered if the person to whom you're sending it is either playing a game, not currently in the Zone, or isn't a Zone member. If this occurs, you're notified, and the message is discarded.



ZoneMessage can be activated by double-clicking on the Zone tray icon on the Windows 95 taskbar.



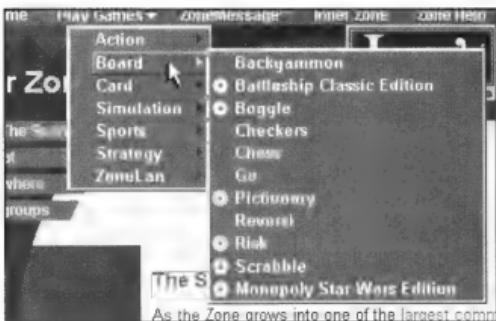
If your Zone Message can't be delivered, you're notified with this message, and your email is discarded.

Zone Help

Zone Services include New Member Registration, Change Member Registration, and Download Zone Software.

passwords, email address, and other information you provided when you joined the Zone.

To access Change Member Registration or the Zone Services menu, click on Zone Help, and then click Zone Services on the Zone Help screen. Select your desired Zone Service. Note that a password is required to change your member-registration information.



Click the Play Games button to select a game.

Zone Services

Although most of the Zone Services are directly accessible from the Zone's Welcome screen and the Zone Home Page (New Player Signup is the same as New Member Registration, and Get Software is the same as Download Zone Software), the only service not offered there is Change Member Registration. This service is used to change

member registration information.

The Gaming Zone

Finally! Now that the nitty gritty is out of the way, we come to the main attraction of our tour. You're probably itching to get started, so let's keep moving along.

There are four types of games played on the Zone:

- Classic Games
- ZoneMatch



- ZoneLAN
- Zone Premium Games

Each type differs in the way it's acquired, how it connects to the Zone, and how much it costs. But here's some general information on how the game rooms operate, as well as some tips on how to feel at home on the Zone.

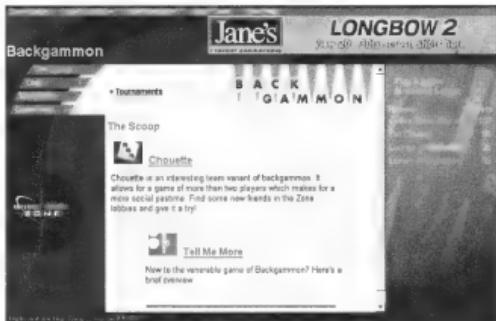
Game Rooms

Clicking the Games List from the Main Navigation Area or the Play Games button at the top of any Zone screen brings up a list of all the current gaming services offerings. From there, select a game type, and then click on the game you wish to play to move to that game room. When you first enter a room, the "Game Room Welcome" screen greets you.

The Game Room Welcome Screen has four sections. Across the top is a menu bar that accesses the same functions as the Main Navigation Area with the addition of a Zone Home button that takes you directly back to the Main Navigation Area. This menu bar remains the same whether you're in the Game Room or in any of the Zone Help or information areas.

On the right is a listing of ZoneMatch Rooms—the number of rooms, their names, and the number of occupants or players in each. And on the left is the Game Room Navigation Bar.

The center displays the last Game Room Navigation Bar selection. This area defaults to The Scoop when you enter the room.



Here's the Welcome screen for the Backgammon Game Room.

Note: When you enter a game room, the Zone automatically sends you any data files you need. You're notified by a certificate (if you have certificate notification enabled), but you don't have to accept the ActiveX downloads—they're pre-verified by the Zone.

Tip: The more players in a ZoneMatch room, the better your chance of finding opponents.

Tip: Bookmark your favorite rooms so you can get there quickly.

The buttons on the Game Room or ZoneMatch Room Navigation Bar are:

The Scoop: A general description of the game being played is in the center,

along with (if available) links to additional information about game play, tournaments, and additional software.

Chat: Unlike the Zone Message Chat function, which is limited to two Zone members, Game Room Chat features several pre-defined topic chat rooms open to all Zone members. We'll discuss Chat and Chatting later in this chapter.

Elsewhere: brings up a listing of related game links, such as clubs, game-specific newsgroups (usually different from those on the Newsgroups screen), and organizations.

Game Help: teaches you how to play the selected game and provides other tidbits pertinent to playing games on the Zone. Some titles offer additional help within the game.



Chat, find opponents, and play in the ZoneMatch rooms.

ZoneMatch Rooms

Here you can chat, find opponents, and play the ZoneMatch Room's game. These rooms contain the game tables where you play. Each game has at least two ZoneMatch rooms—in other words, two Checkers ZoneMatch rooms, two Go ZoneMatch rooms, two Reversi ZoneMatch rooms and so on. Of course, some of the more popular games



have more ZoneMatch rooms. Hearts has six, and the hugely popular Spades has 11 rooms!

Each ZoneMatch room is composed of four sections: the Navigation Bar on the left, the Gaming Tables in the Center, the Player List on the right, and the Chat Window at the bottom.

Tip: Game rooms can get crowded fast. If you want to play with a specific number of friends, make sure there's enough space for everybody.

Game Tables

Depending on the game you're playing, the Gaming Tables area shows either icons of people (or computers if you're playing computerized opponents) or some other depiction of the game environment. For instance, the Golf game tables show pictures of fairways. Regardless of the scene, the window is very straightforward and easy to understand. If there are players at a table, you see their icons (or Avatars). Their Member IDs are listed next to them. Naturally, game tables allowing four players have four chairs; two-player games have two.

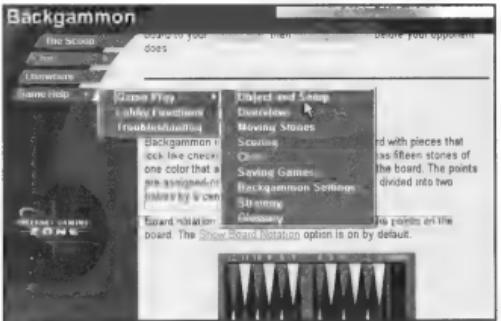
Each game table is numbered, and limits on the number of tables are based on the game type. Specifically, card game rooms contain 51 tables and can hold a



Depending on the game you're playing, you'll either see computer opponents or Players sitting at Tables (represented by icons with their Member IDs listed next to them) or...

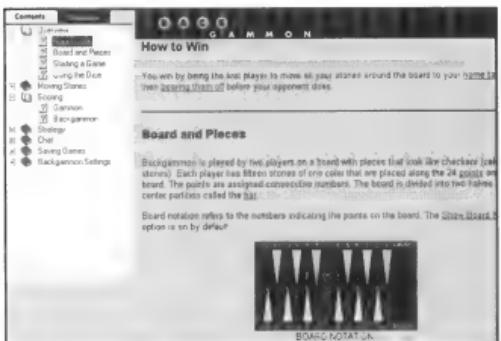


...gorgeous golf fairways.



This is the Backgammon game Help accessed from the Game Room Navigation Bar.

Note: *The Help files accessed by the Navigation Bar aren't always the same as those on the Game Board, although this may eventually change. Until then, scan both to fine-tune your strategy.*



Note that the Help file at the Backgammon game board is the same as the one accessed from the Game Room Navigation Bar. Others, however, are different.

maximum of 240 members, and board-game rooms contain 102 tables and can hold a maximum of 240 members. Use the scroll bar on the right side of the Game Table Window to view additional game tables.

Learn to Play the Zone Way

You probably won't know how to play all the Zone's games. Well, the Zone feels your pain. That's why it's easy to begin just about any Zone game even if you're a rank novice. Features such as Game Help, Computerized Opponents, Kibitzing, and Chat pave the way. How?

Game Help

You can get game help from either the Navigation Bar found on the left side of the Game Room and ZoneMatch screens, or from the game board itself.

In-Game Help can be called up either by clicking on the "?" (question mark) button found in the top right-hand



Tip: Be careful if you're using the Alt-Tab keys to switch between your game and the Game Help file. Don't press any other button on the navigation bar or you'll be disconnected from your current game. And don't leave your partner or opponent hanging—keep toggling back to your opponent to make sure it's not your move. The Zone social protocol suggests that you type "brb" ("be right back") before going to the Game Help file. Or for a soda.

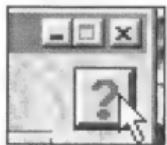
corner of the game board, or by accessing the drop-down menu found in the title bar. Either option usually brings up a resizable window, so you can move or adjust it to keep the game board in view. You can also toggle between the game board and Help window by pressing Alt + Tab.

Computerized Opponents

All card games offer computerized opponents known as "bots." Not only can these silicon opponents help you learn the game, but they can fill in when you're short of players as well.

Computer opponents automatically appear if you sit down and start a game with fewer than the required number of players.

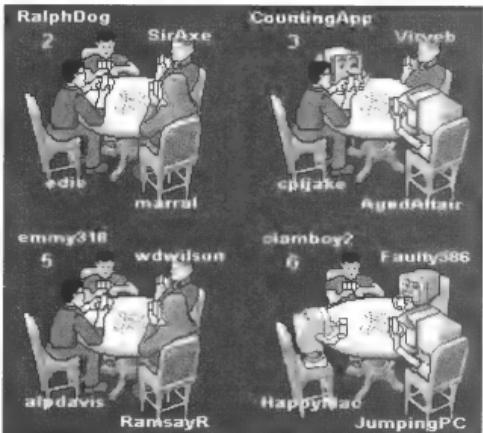
The best aspect of bots is that they won't chat up a storm or razz you when you lose—which is more than some human opponents can say. All in all, computer opponents are great for learning because they know the game and they never tire.



Click on the "?" button found on the game board for In-Game Help.



Help can also be accessed from the drop-down menu found in the title bar of the game board.



Computerized opponents are affectionately known as bots.



You'll know when your game is being kibitzed because a single eye appears near your Member ID.

Note: You can tell if someone is kibitzing a game because eye icons appear near the player being kibitzed. The look of the eyes varies with the game being played.



A pair of eyes can appear as well as a single orb. It all depends on what game you're playing.

Kibitzing

The next best way to learn a game is to watch one in progress (preferably after you understand the basics). Watching (or "kibitzing") is a popular pastime for new Zoners. Unfortunately, kibitzing is available only for Card and Board games.

To watch or kibitz a game:

1. Click a player's icon.

When you're asked "Would you like to kibitz the game in play?"

2. Click Yes.

You see the game from that player's perspective—in other words, you only see the cards or game pieces held by the player you're watching. If the player you select has cleared the "Kibitz or Hide Cards

From Kibitzer" check boxes from the game Options screen (more in a minute), you can't watch a game or see a player's cards.

Kibitzing is a neat feature not only because it allows you to watch a game in progress, but also because you can sometimes sneak in a question or two if you're nice about it. Just don't go overboard...which brings us to gaming etiquette.

Zone Gaming Etiquette

You can make the Zone a friendlier place to play if you follow the Zone rules and add a few more of your own. We asked long-time Zoners for the unwritten laws. For example, when kibitzing, it's courteous to announce yourself as soon as you enter the game. A simple "Hi, mind if I watch your game?" or "Mind if I kibitz?" goes a long way—especially if you want to ask some questions!

Generally, most people will let you watch as long as you ask instead of just barging in on a game.



If the game you're watching uses timers, try not to disturb the players with questions and such. Making a pest of yourself while someone is trying to play is the fastest way to get locked out of a game. And don't forget to thank your hosts when you exit the game.

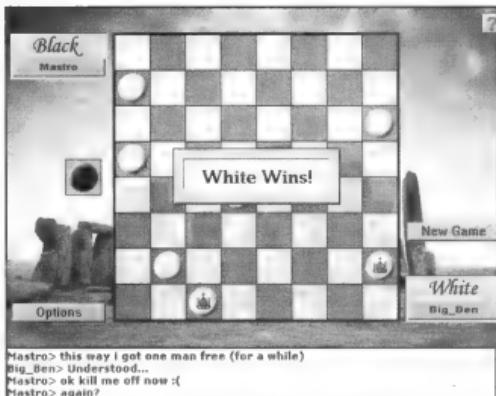
When joining a game, don't just sit down at a table unless you see the "thumbs up" icon beside your would-be opponent. Actually, it's usually best to ask before sitting down at any table. After all, the player might be waiting for a friend to sign on.

Introduce yourself once you sit down. Nothing fancy is required—just a friendly "hello" or even "let's play!" will suffice.

And when you're playing a game, don't forget to say thank you *even if you lose*. The abbreviation "gg" ("good game") is perfectly acceptable—and it makes you look like a real pro, too.

And even if you're getting trounced, don't just exit the game—nothing makes you look more like a novice and a bad sport. A better response is to concede the game and congratulate the winner, or at least let your opponent know you're going to withdraw.

Other procedures for joining games may not be readily apparent to a new Zoner. We cover those in the section following this one. But first, let's chat!



If there's nothing left but losing a game, be a good sport. At the very least let your opponent know you're going to withdraw instead of abruptly exiting. Good sportsmanship makes the Zone a pleasant place to game.

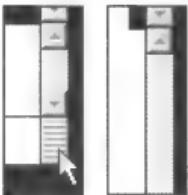
```
(Enter)> Mastro
(Easy)> I'm
Mastro> anyone up for a game?
Mastro> table 7 :)
I'll play
```

Chat boxes are divided into two sections. The bottom section is where you type your outgoing messages. Nothing you type there is sent until you press Enter.

Note: Because of the size of the game board, you can't chat in Backgammon if your resolution is set at 640x480. The only solution is to change your resolution to 800x600 or higher.

```
(Exit)> cricket9
Mastro> anyone up for a game?
Mastro> table 7 :)
Big_Ben> I'll play
```

Once your message is sent, it appears in the upper chat box with your Member ID preceding your comment.



Enlarge the chat window by selecting the box at the bottom right-hand corner and dragging it to the desired size.

Tip: If you'd like to chat privately with a Zone member, begin a game, but don't start playing. Now you can chat all you'd like. However, if you really want to keep it private, turn off the Kibitzing option at your table (look under the Options menu).

Chat and Chatting

Zone Chat works just the same as chat features on any other system. Using this real-time communication with other Zoners, you can talk to players all over the world, get to know your opponents, get tips on game play, or just socialize.

The Chat boxes are found at the bottom of the ZoneMatch game-room screens, and in the Chat rooms selected from the Game Room welcome screens. They're divided into two sections: you

type your outgoing messages at the bottom, and you can read what everyone else is saying just above it. When someone sends a message, his or her Member ID precedes the message, which helps everyone follow conversations. Nothing you type is sent until you press Enter; it then appears in the conversation section of the chat box.

Chat is always available in ZoneMatch rooms and at the game tables. However, you can't chat with someone in the ZoneMatch room if you're playing at a table, and you can't chat between any game table if there's a game in progress.

While some players like to chat while playing, others find it distracting. You can ask up front, or just take the hint if your opponent doesn't respond, or takes a long time to respond. Chatting, however, is usually quite welcome when you're in a ZoneMatch main room. It's a great way to pass the time.



while you're waiting for friends to sign on.

You can get disoriented if there are a lot of people chatting in one of the main rooms because messages pop up and scroll by so quickly. If you're in the main room, go ahead and enlarge the chat box to give yourself a little extra reading time.

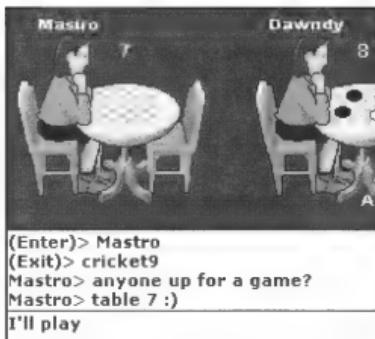
You enlarge the ZoneMatch room chat box the same way you enlarge any other Windows 95 window: select the box at the bottom right-hand corner of the chat room lobby and drag it to the desired size.

Warning: Do not click the Refresh button, press the right mouse button and Refresh, or press F5 during a game. If you do, the game closes and you must begin a new one.

Playing in the Zone

At last! The fun part of the tour—it's time to play! You can play a Zone game in one of two ways: Joining a game or Hosting one.

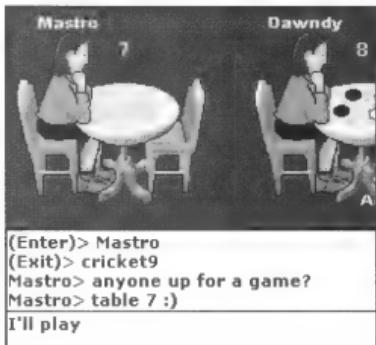
But just to make life a little difficult, the procedures for Joining or Hosting a Classic game are different than for some of the other Zone games. For now, let's stick with the Classic games.



To Join a Classic game, just click on an empty chair where a Zoner is hosting a game.



Once seated, click on the Start button to begin your game.



Don't assume that someone sitting at a game table alone wants to play. Some Zoners just like to sit at a table and chat, or they might be waiting for another player.



The little "thumbs up" picture indicates that the player is ready, but it's always best to ask before sitting down. The player may be waiting for someone else to arrive.

In some cases, the host gets to move first. But by and large, the differences between Hosting or Joining a game are very minor (not much more than who first clicks the Start button).

Joining a Game

It's easy to Join a Classic game—just click on an open chair at a table where a Zoner is hosting a game, then click the Start button. But don't forget to use Internet etiquette: don't assume that someone sitting at a game table alone wants to play. Some Zoners just like to sit at a table and chat. He or she also might be waiting for another player. And even if you see the "ready to play" icon (the thumbs up), it's always best to ask to play.

Unless the host has sent out a message

looking for an opponent, you can't tell if that open seat is reserved for someone else.

Hosting a Game

All things considered, hosting a game on the Zone is a lot easier than buying chips and soda and inviting everyone over to your house. And there's no cleanup after an evening at the game tables!

To Host a game, click a seat at any empty table. When the Start button is displayed, click it to begin the game.

The hardest part about Hosting a game is finding opponents. Here are a few tips:

- If you're playing something besides a card game, sit at a table and click the Start button. A "thumbs up" icon will appear, which indicates you're ready to play. An

opponent might sit down or might just ask to play. Keep an eye on the Chat box. Announce you're hosting a new game with chat messages such as "New



game starting at table 19," "Game at #19," or even "New @ 19."

- Another approach is to ask nicely. Chat messages like "Anyone up for a game?" usually yield more favorable results than "Anyone want to get his butt kicked in checkers?"
- Use the ZoneMessage feature to locate friends and invite them for a game.
- Scroll through the player list for members you know.
- Check the status of players in the room and invite anyone not kibitzing or currently playing in a game. This almost always works because not many can turn down personal invitations (or challenges to a good game).

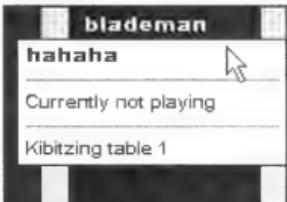
Player List, Status, and Latency

The player list is found at the right of a ZoneMatch room and lists every player in that particular room. You can get a wealth of information from the list to help in your search for opponents. Specifically, you can get information about a player's status and what kind of overall network performance you're experiencing.

To check player status, click and hold the left mouse button on the Member ID of someone on the player list. A small pop-up box lists the player's name and whether he or she is kibitzing or playing a game.

Latency is the amount of time it takes for information to be sent from your computer to the Zone server and back again. Your overall latency is displayed by the color of the little circle located at the top of the Player List in the card and board game ZoneMatch rooms. Next to each player's name on the list in the ZoneLAN and Retail ZoneMatch rooms are four little rectangular bars—these are the opponent Latency indicator lights.

Tip: If you've planned to Host a game but want to get up from your table and leave the Zone or join someone at another table, just click the chair occupied by your icon.



Click and hold the left mouse button on a name from the player list to call up his or her status pop-up box.



Next to each player's name is the Latency indicator. The number and color of bars lit is a graphic representation of the connection that player is experiencing.



Game table latency is calculated in the ZoneLAN and Retail ZoneMatch rooms.

The lower the latency, the less time it takes for your game movements to be received by other players.

The color of each player's overall Latency indicator is a graphic representation of the speed of the connection(s) to the Zone that each player has.

Green: Low latency. Players can expect good conditions for game play.

Yellow: Medium latency. Players might experience slight problems in game play.

Red: High latency. High latency is *not* conducive to Network play.

Opponent Latency in the ZoneLAN and Retail ZoneMatch rooms is represented by the number of bars colored, with four bars being the best and one being the worst. Each member's latency rate differs, depending on his or her computer and ISP. These factors can also cause two players to see different latency rates for other players. For example, Player 1 might see a yellow (good) latency rate for Player 3, but Player 2 might see a red (poor) latency rate for Player 3.

The Latency indicator continually monitors how quickly your computer communicates with other members' computers. As a result, your latency rate can change even while you're connected to the Zone. Your latency rate is refreshed and updated approximately every 20 seconds. However, you won't see a member's latency rate if he or she enters a game room or joins a game after the latency rate refresh, connects to the Zone through a proxy server, or is playing a game and you're the only other person in the room.

Finally, each game table within ZoneLAN and the Retail ZoneMatch rooms calculates the overall game table latency. This latency indicator is located on the right side of the game table title bar. A green plus sign (+) signifies the best connection, a yellow dot (.) signifies medium latency, and a red minus sign (-) indicates poor latency.



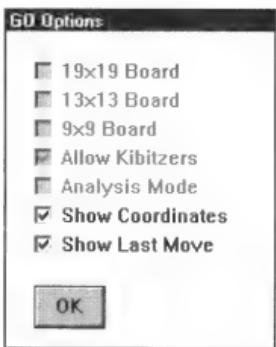
Game Options

You generally have some options when you're playing a game. The game-settings window is usually called up by clicking the Options button the on game board or through the Game selection on the menu bar. Some options are available only for specific games, but some common options are:

- Allow watching or kibitzing—if you disable kibitzers, no Zoners at your table can kibitz. And if they were already kibitzing when you select this option, they're dropped back to the ZoneMatch room.
- Silence kibitzers—This allows kibitzing, but players can't chat. Use this option if you're easily distracted.
- Allow card viewing—Disabling this hides your cards from your kibitzer.
- Team name—in some games you can personalize the name of your team. If you're shooting for the Zone Hall of Fame, this name is what appears in lights.
- Enlarge Game Table—Do this just as you would enlarge any window: put the cursor over the corner of the window and drag to the desired size.



The game settings window can be called up from the Game selection on the menu bar.



Some game options are specific to the particular game you're playing. These are some of the options available while playing Go.

Exiting

How you exit a game depends on the type of game you're playing. Remember that it's considered good Zone etiquette to announce that you're resigning or going to quit a game before doing so. Also, a hearty "congratulations" or even a little "see ya" is preferable to disappearing on your opponent.

To exit a Card or Board game, click the chair occupied by your icon if you're at a matchmaking table, or click Close (or click on the close box icon if you're playing a game) and then click Yes in the dialog box. To exit a Retail game, click Leave if you're at a



Click on the Close Box icon at the very right of most windows to exit.

matchmaking table, or press ESC or click Close if you're playing a game. To exit any ZoneMatch room, click on Exit or close the ZoneMatch window by clicking on the close box icon. To exit a Game Room, click Zone Home on the navigation bar, and select another game or service.

Let the Games Begin

Now that we've gone through the Zone's procedures and services, let's take a look at some of the games you can play on the Zone. Along the way we'll talk a little about how they differ from each other, as well as offer some tips on how to get them up and running.

Classic Zone

These are the popular card and board games. While many hardcore electronic gamers may find these way too tame, in actuality, Classic Games is one of the most popular sections on the Zone.

In fact, Zone players range from nationally-ranked champions to rank novices. Members of organizations such as the U.S. Chess Federation and the U.S. Othello Association frequent the Zone—but don't let that scare you. Players of all skill levels are always welcome. Besides, you can learn only so much from a player worse than you are!

Software and Costs

What separates Classic Games from the other Zone games is the fact that they're free—and will always remain that way. You can download fully-working versions of the game for free, and you can play them to your heart's (no pun intended) content. Also, because the Zone directly supports Classic Games, updates are automatically sent to your system—also for free.

It doesn't really matter whether Classic Games are popular because they're free or because they're simple, yet challenging to play. If you want to play a board or card game, there's almost always a Zoner ready to join you or take up your challenge no matter what time of the day or night!

The Zone's Classic Games include:

Backgammon: The strategic game of war on a board. Backgammon is one of the oldest games in existence, dating back some 5000 years, and probably



developed by the ancient Egyptians. You learn to master your intuition and rely on occasional luck as your stones engage your opponent's in an obstacle race to their home row.

Bridge: This is one of the most popular—and challenging—card games in the world. It's difficult to learn Bridge just by watching games in progress or playing bots, but that's a great way for a novice to polish his or her game. One of the neat features of Zone Bridge is a bidding table that simplifies bidding, and Chat is always available so you can establish conventions with your partner or learn more advanced bidding conventions from advanced players.

Checkers: Deceptively simple, delightfully fun. Did you know that traditional checkers wasn't played with black and red chips, but with black and white ones? Well, regardless of its origins, Checkers is a straightforward game that anyone and everyone can play and enjoy. The Zone version includes forced jumps, so check the rules if you think you need a refresher course.

Chess: This world-famous game is rooted in ancient history. Again, you need to know something about the game before striking out on your own. Zone Chess offers features such as a move timer to keep things going or to handicap better players. In addition, the Notation Pane makes reviewing moves easy for players of all levels.

Go: Sometimes called "Life and Death in Black and White," Go is more than just a strategy game—it has a mystical and spiritual side as well. You'll probably be surprised just how popular Go has become in certain circles. Go features three board sizes so you can customize your game, and it also includes Handicap options so you can play against opponents of all skill levels. While there's a Take Back button, don't use it too often! It's far better to consider your moves carefully first.

Hearts: Hearts is a card game with something for everyone. The object is to try to avoid taking any hearts or the queen of spades. Or you can shoot the moon and penalize your opponents. Warning: This game is so addicting, an "Auto Play" button was added so the computer can play for you while you're AFK (Away From Keyboard) when nature calls!

Reversi: The game of strategy and double identities. Reversi is one of the easiest games to learn on the Zone, but it's also one of the hardest to master.

The best way to learn is to just sit down and play. Don't be fooled into concentrating on the number of pieces you have—Reversi is all about timing and position. Remember, the game isn't over until the last piece is played!

Spades: Quick and easy to learn, Spades is an entertaining card game for people who don't want all the strategy of Bridge. Bidding is easier since Spades is always trumps, but *failing* has its own tactics. The yellow diamond states the number of tricks you expect to take. If you're feeling very daring, try bidding Nil or Double Nil. Be careful not to take more tricks than you bid, or you'll pay the price!

ZoneMatch

ZoneMatch games are retail titles directly supported by the Zone. You can easily recognize which games are retail ZoneMatch games by the CD-ROM icon next to the game name on the Game Lists. Some of the hot titles are:

Age Of Empires: Already considered to be the definitive real-time strategy game, Microsoft's Age of Empires offers several ways to play, 12 civilizations to rule, and several ways to win. In single player or multiplayer mode you can play a randomly generated map with a number of selectable settings, or you can play a Death Match, with its own preset or user chosen playing and winning conditions.

Play one of the preset scenarios or get involved in one of the extensive campaigns. You can even create your own scenarios and campaigns and give them to your friends to play. And of course, there are the multiplayer options. There's nothing like taking on another empire builder in the Zone lobbies.

Command peasants, priests, archers, chariots, catapults, seize engines, transports, centurions, and nearly unstoppable elephants to bring the glory of your empire across the seas. Just don't forget to bring along warships, in case your new friends aren't interested in the glory of your empire. As a player of one of the Zone's most popular games, you'll almost always find an opponent ready and waiting to expand their empire into yours.

Close Combat: A World War II strategy game that focuses on the human element of war amid real-time action and historically accurate situations. You're placed in command of men who act and fight like real soldiers. In other words, they're affected both physically and mentally by the battle situations they face. They may fight heroically, cower, break, rally, obey, or sometimes



disobey depending on the orders you issue.

As the unit commander, you experience both the sights and sounds of a live battlefield as you lead your men through the Normandy Campaign. The shooting begins the moment you step onto Omaha Beach and continues until you've finally taken Saint-Lu. And if you've got the guts, you can go head-to-head with other desktop generals in two-player mode.

Fighter Ace: Developed by VR-1, Fighter Ace—the first Zone Premium Game, rather than a ZoneMatch retail game—debuted on the Zone in the winter of 1997. Fighter Ace is a World War II air combat game that features scenario-based and arena-based combat, and team play with variable difficulty (rookie through expert) for more than 100 players per flight arena.

While there are several competing multiplayer flight sims out there, Fighter Ace doesn't require you to have a Ph.D. in flight dynamics to have high-flying fun on the net. If you've think you've got *the right stuff*, Fighter Ace gives you the chance to prove it—and even if you don't, Fighter Ace is simple enough for you to jump right in and have a heck of a lot of fun blowing things up.

Flight Simulator 98: For 15 years, Microsoft's Flight Simulator has remained the world's most popular flight simulator. Just as if you were in control of a real aircraft, you'll take off, navigate to your destination, and land safely. Although you may run into bad weather, air traffic, or system failures, the goal is to have fun flying in the most realistic virtual environments ever. To take a break from flying or wait out bad weather, climb into the Tower and become the air traffic controller for other flyers.

Other popular Flight Simulator 98 activities include aerobatics competitions, fly-ins, formation flying, air races, and cross country flights. If there's something you can do in real life in an airplane, the chances are pretty good someone is doing it here with Flight Simulator 98 on the Zone.

Microsoft Golf 3.0: It's now better than ever with a lightning-fast Windows 95 game engine, superior graphics, and a realistic feel from start to finish. Golf is a social game, right? So don't play alone. With the new multiplayer patch, you can challenge your friends to a round. And to make things even more interesting, you can now choose from four scoring options: traditional play, match play, skins, and team bestball.

If you can't read the terrain of a hole, even a great swing isn't going to help you place the ball. To assist in those situations, you get four different views of each hole: from the tee, behind the green, a bird's-eye view, and a side profile.

You can select from two new courses as well, the majestic mountain setting of Banff Springs or the renowned Harbour Town Golf Links in Hilton Head, South Carolina. A Caddie Wizard aids with club selection if you need help.

Hellbender: As commander of the awesomely equipped Hellbender prototype attack craft, you alone must destroy the soulless Bion invaders before they carry out their mission of annihilation. Choose your targets and attack with precision. But without a strategic plan you're dust. The future of the Coalition of Independent Planets rests on your shoulders.

Blaze through mind-searing graphics when supported by Direct3D technology with a 3-D graphics card, and perform intense aeronautic maneuvers with full freedom of movement and complete cockpit views. Real-time light sources, electrifying environmental FX, and a Bion-blitzing armory bring the sci-fi story of danger and discovery to life.

Monster Truck Madness: Now you can race the vehicle you dream about while you're stuck in rush-hour traffic. Monster Truck Madness provides an exhilarating off-road driving experience by offering various racing modes across several challenging tracks.

Monster Truck Madness drivers can select from 12 different real-life monster truck models and modify their handling characteristics by making adjustments in the Garage. Trucks and vans are modeled after actual vehicles to incorporate the most accurate physics as well as provide the bone-jarring sensation of controlling these powerful off-road monsters. The four-wheel steering and multi-dimensional movement gives players a sense of jumping, bouncing, and rolling as if they were behind the wheel of a real monster truck.

Trucks can be adjusted to tackle various elements, including mud, grass, asphalt, sand, and water. If you think you're up to it, you can attempt off-road shortcuts as you race from checkpoint to checkpoint.

X-Wing vs. Tie Fighter: A long time ago, in a galaxy far, far away...Fly for the Rebels or the Empire in over 50 single- or multiplayer-combat missions in nine meticulously enhanced Star Wars starfighters. Now you can prove your mettle in thrilling real-time dogfights of up to four players on the Zone. The power of the Force resides only in the most skilled and daring pilots.

Outlaws: Ride back into the wild west as the gun slinging Marshall James Anderson. You'll encounter a dusty town, an abandoned mine, a runaway train, and the orneriest criminals this side of the Mississippi as you uncover a twisted plot of greed and corruption.



Software and Costs

To play ZoneMatch games, you must purchase the full game from a retail store or try out free trial versions. To play a trial version (if there is one), click the Trial button which is usually found on the Game Room Welcome screen, and download the software onto your hard disk and install it before entering a ZoneMatch room. Trial versions, as we've said, are usually incomplete in some way—for example, they have fewer levels, fewer vehicles, or fewer weapons.

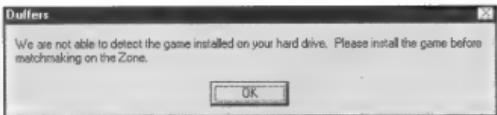
You can play ZoneMatch games free of charge (other than any online connection charges you normally incur). However, if you're playing a trial version of a game, you can play only against other members playing a trial version.

How to ZoneMatch a Game

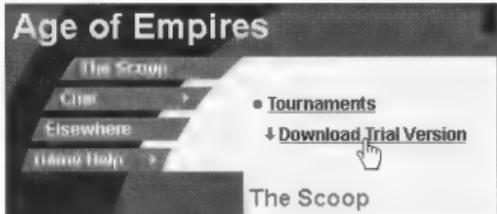
All players must have the software (they must have the same version as well) on their hard disks before starting the game. Also make sure you and your opponent(s) are using the same version of the Internet Gaming Zone software before you attempt to matchmake.

To MatchMake a ZoneMatch game:

1. Enter the Game Room for the ZoneMatch game you want to play.
2. Select a ZoneMatch room.
3. Host a table or Join someone else.
4. Name your table something that describes the game and the number of players you're looking to play against.
5. Send Chat messages describing the game to solicit other players. It's



To play ZoneMatch games you must have the full retail game or trial version installed on your computer.

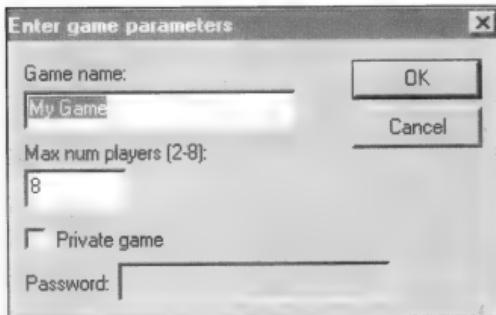


Click the Download Trial Version link found on the Game Room Welcome screen to download the trial software onto your hard disk.



Although the screens may look different, the process of joining a ZoneMatch game is remarkably similar to joining a Classic board or card game.

Note: Hosting some Retail ZoneMatch games allows you do such things as password-protecting the game or booting (removing) players from the table by right-clicking on the players' name from the game-table player list.



Naming your table something descriptive might help attract players.

a good idea to indicate how many players you need at this time as well. All players must have a copy of the game and version installed on their hard disks before attempting to matchmaking.

6. If you're Hosting this game, click the Play button when everyone's ready to begin.

To leave a Zone-Match game:

1. If you are at a matchmaking table—click the Leave button.
2. When the game is finished, exit the game as you normally would in single player mode.

Here are some suggested solutions for possible ZoneMatch problems:

- Make sure you and your opponent each have installed the same version of the game. Members using trial versions should play only against other players with trial versions.
- If you have the retail version of Microsoft Golf 3.0, but get an error message saying that the game can't be found, it usually means you



haven't installed the multiplayer game patch. Install the patch found in the Golf game room, and then try matchmaking another game.

- If you've already installed the multiplayer patch for Monster Truck Madness but get an error stating, "You have an older version of Monster Truck Madness...," you may have installed the multiplayer game patch before installing the retail version of the game. Make sure the game is installed, and then reinstall the multiplayer game patch.

Note: Windows 95 and Windows NT games that use TCP/IP don't require ZoneLAN to work. However, some players think it's easier to find your friends on ZoneLAN. Games specifically designed to run on Windows 95 or Windows NT won't be playable on ZoneLAN.

ZoneLAN

ZoneLAN allows Zone members to matchmake popular multiplayer games in one room. However, ZoneLAN works only with MS-DOS-based IPX multiplayer games intended for play over a local area network (LAN).

Naturally, the speed of game play over the Internet varies on a game-by-game basis.

This means you can play your favorite games—such as Doom—even if they aren't directly supported by the Zone, and others—like Kali—that previously required software to be played over the Net. ZoneLAN allows you to play these games for free.



ZoneLAN matchmakes MS-DOS-based IPX multiplayer games.

Software and Costs

In order to play ZoneLAN games, you must have the same game software as your opponents. It doesn't matter if you have a retail version or a demo/trial version of a game as long as your opponents are running the same version. Retail games can be purchased in stores; however, demo versions (if there are any) can usually be found on the Web.

Because the Zone does not officially support ZoneLAN games, you can't download demos there. Look for demos at the specific game publisher's Web site, or check out some of the larger game magazine and gaming Web sites such as Computer Games Online at www.cdmag.com or Happy Puppy at www.happypuppy.com.

What about the cost of playing ZoneLAN games on the Zone? There's none, zilch, zippo—they're free, free, free! If you haven't already realized it, the Zone's a great place for gaming.

What Games Work in ZoneLAN?

ZoneLAN works only with MS-DOS-based IPX multiplayer games. Because of the number of variables involved, the Zone can't guarantee that everyone's experience over the Net will be the same. Here are lists of games that work...and the ones that don't.

The following games work well on ZoneLAN:

- 3D Realms
- Duke Nukem 3D
- Accolade Star Control 3
- Activision Mech Warrior 2 for MS-DOS with NetMech
- Bethesda Softworks SkyNet
- Blizzard Warcraft II (version 1.2 or newer)
- id Software Doom
- id Software Quake
- Interplay Descent
- Interplay Descent II
- Interplay M.A.X.
- Interplay Virtual Pool
- Interplay Virtual Snooker
- Novologic F22 Lightning II

Note: Games are constantly being added or patched to work on the Zone. The best place to find out about updates and additions is on the Zone itself. Keep checking!



The following games currently *do not* work on ZoneLAN:

- Activision Mech Warrior 2 for Pentium with NetMech
- Westwood Command & Conquer
- Westwood Command & Conquer Red Alert (DOS version)
- Windows 95 and Windows NT games
- Virgin Interactive Z

How to Use ZoneLAN

All the players must have the software on their hard disks before starting the game. Also make sure you and your opponent are using the same version of the Internet Gaming Zone software before you attempt to matchmaking.

To matchmaking an MS-DOS multiplayer game:

1. Select a ZoneMatch room according to the type of game you wish to play.
2. Host a table or Join someone else.
3. If you host a table, you'll be given the opportunity to name your table. Name your table something that describes the game you're playing for easier identification by other members. Something like "Doom 2 1.666 retail" indicates you're playing the retail version of Doom 2, release version 1.666. It's also a good idea to indicate how many players you're looking to play against as well.
4. Send Chat messages describing the game to solicit other players. It's a good idea to indicate how many players you need as well. All players must have a copy of the game and version installed on their hard disks before attempting to matchmaking.
5. Decide who is going to begin the game as the game Host (answerer vs. caller) and which network socket number you will all be using, if any is required. Any random number will do as long as everyone uses the same number.
6. Click the Play button. ZoneLAN opens an MS-DOS window and loads the ZoneLAN software. Be patient—loading the software may take a minute or two.

7. Start the game in the MS-DOS window. Pressing Alt-Enter toggles your view between a window and full screen.

To leave a ZoneLAN game:

1. If you're at a matchmaking table click the Leave button.
2. When the game is over, close the MS-DOS window to return to the Zone.

Getting ZoneLAN Help

Because there are so many different DOS-based games out there, the Zone can't provide technical support for any games other than the ones officially supported. You're pretty much left to try games yourself and see if they work. Fortunately, setting up a game is pretty straightforward. However, if you're really stuck for additional help you can try reading the ZoneLAN Help file, sending Chat messages to other players, or asking about the game in the Internet Gaming Zone ZoneLAN Zone newsgroup or other Internet newsgroups.

You can report games that don't work on ZoneLAN to the Internet Gaming Zone ZoneLAN Newsgroup, designed specifically for the discussion of issues and bugs. Read it for news, work-arounds, and updates by Microsoft on the status of known bugs with games used with in the ZoneLAN.

ZoneLAN Tips

If you Host or Join a retail game and the match doesn't begin, it may be because a member has Joined a game and then clicked the game icon on his or her desktop to start the game instead of letting the Host click the Play button to start the game.

Note: *The Zone makes no representation concerning the content of sites not under the control of Microsoft or the IGZ, nor does the provision of the link serve as an endorsement by the Zone.*

When this happens, both the Host and the Joiner start games on their own hard disks and the Zone matchmaking process fails. When you matchmaking retail games, remember that only the Host should start the game. If you're the Host, remember to click the Play button, not the game's icon on your desktop.



Zone Premium Games

Premium games are the newest addition to the Zone. The games offered here are games specifically designed from the ground up for Internet play on the Zone. Before we talk about the Premium games themselves, there are some other differences.

Software and Cost

What separates the Premium games from the other ZoneMatch games is that the software is available absolutely free (although it is also available for retail purchase to save you downloading time if you wish). These are not trial versions, they're the *real deal*. The way the Zone can afford to offer Premium games is by charging a pay-for-play charge known as "Subscriptions".

Premium game subscriptions are sold in two denominations: a Day Subscription is good for unlimited Premium gaming for 24 continuous hours from the time of purchase, and a Monthly Subscription is good for unlimited play for one month.

The cost of each type of subscription is game-dependent, but to give you an example, for Fighter Ace (the first such pay-for-play game on the Zone), Day and Monthly Subscriptions are \$1.95 and \$19.95 respectively. Subscription costs for other Premium games will be announced on the Zone.

The Social Zone

There's more to the Zone than just a bunch of people playing games in cyberspace. It's a community of people who all share more than a passing interest in multiplayer gaming. One of the neatest things about the Zone is the friendships you'll make. While no one can promise you'll make a best friend on the Zone, you're sure to meet people who share your interests through events such as tournaments, contests, and conventions.

A screenshot of the game's interface showing the 'Zone Tournaments' section. The list includes: 'Zone Tournaments', 'Zone 1', 'Zone 2', 'Zone 3', 'Zone 4', 'Zone 5', 'Zone 6', 'Zone 7', 'Zone 8', 'Zone 9', 'Zone 10', 'Zone 11', 'Zone 12', 'Zone 13', 'Zone 14', 'Zone 15', 'Zone 16', 'Zone 17', 'Zone 18', 'Zone 19', 'Zone 20', 'Zone 21', 'Zone 22', 'Zone 23', 'Zone 24', 'Zone 25', 'Zone 26', 'Zone 27', 'Zone 28', 'Zone 29', 'Zone 30', 'Zone 31', 'Zone 32', 'Zone 33', 'Zone 34', 'Zone 35', 'Zone 36', 'Zone 37', 'Zone 38', 'Zone 39', 'Zone 40', 'Zone 41', 'Zone 42', 'Zone 43', 'Zone 44', 'Zone 45', 'Zone 46', 'Zone 47', 'Zone 48', 'Zone 49', 'Zone 50', 'Zone 51', 'Zone 52', 'Zone 53', 'Zone 54', 'Zone 55', 'Zone 56', 'Zone 57', 'Zone 58', 'Zone 59', 'Zone 60', 'Zone 61', 'Zone 62', 'Zone 63', 'Zone 64', 'Zone 65', 'Zone 66', 'Zone 67', 'Zone 68', 'Zone 69', 'Zone 70', 'Zone 71', 'Zone 72', 'Zone 73', 'Zone 74', 'Zone 75', 'Zone 76', 'Zone 77', 'Zone 78', 'Zone 79', 'Zone 80', 'Zone 81', 'Zone 82', 'Zone 83', 'Zone 84', 'Zone 85', 'Zone 86', 'Zone 87', 'Zone 88', 'Zone 89', 'Zone 90', 'Zone 91', 'Zone 92', 'Zone 93', 'Zone 94', 'Zone 95', 'Zone 96', 'Zone 97', 'Zone 98', 'Zone 99', 'Zone 100'. A 'ZONE' logo with a gear and the text 'INTERACTIVELY LEARNING' is visible in the top right corner.

Check The Scoop and the Inner Zone regularly to be kept informed of tournaments and other events.

**From the
Edge
of Zone**

Volume Two

1 September 1997

Issue 5

The Edge of Zone is written by the users of Microsoft's [Internet Gaming Zone](#) for the users. This site is neither sponsored nor endorsed by Microsoft.

Can you spell **FUN ?
by [george](#)**

In June, the new Zone's tour de force continued with the addition of the world's most popular word game, Scrabble. Now owned by Hasbro, the game was invented in 1948 by Alfred Butts, a man named Alfred M. Butts. His idea was to spell words on a board removing a crossword puzzle and linking them to other words already on the board. Mr. Butts determined letter distribution by counting their frequency of use on the front page of the New York Times. . .

cont. next

Want to be the first to know when the next issue is coming out?

Fill out this form, and you will be sent email when we publish the next issue.

Your Zone Name

Your E-Mail Address

Blanche on Bridge

Zone News and Events

To keep up-to-date on Zone news and events like tournaments, be sure to check the News and Events Inner Zone and The Scoop areas often. Note that the News listings in the main navigation area (Inner Zone) pertain to the Zone in general, and that those in The Scoop pertain to the specific game being played in each game room.

Written entirely by Zone users, The Edge of Zone newsletter is at the forefront of Zone social activities.

Zoner Conventions

The 1st Annual Zoner's Spades and Hearts Convention took place in Dallas, Texas in May 1997, and the 1st Annual Zoners Bridge Convention was held just outside Montreal at the Chateau Bromont in June 1997. Lots more are in the works.

Conventions bring together a group of social and competitive gamers from the Zone to a single physical location. They're a great way for players finally to meet each other and interact face-to-face in both social and competitive environments. For current information on conventions and other Zone activities, visit The Edge of the Zone newsletter found at <http://webknx.com/zone/edge>.

Future Additions

As mentioned at the beginning of this book, the Zone is a living site. It's constantly growing and expanding with upgrades and additions. Some of the many things you have to look forward to are:

- Tournaments for Microsoft Golf, Close Combat, Hellbender, and Monster Truck Madness.

CHAPTER TWO: IN THE ZONE



- Hall of Fame categories honoring the greatest Zone players.
- Libraries of .wad files (special game levels), game tips, and more.
- Zoner Profiles that allow other players to know who you are and what types of gaming you enjoy.
- Virtual Portraits for creating pictures of your Zone personalities. You'll be able to make a picture to personalize your virtual player.

We hope you enjoyed your little tour of the Zone and maybe even learned a thing or two along the way. The Zone really is a marvelous place to visit and play games, but most importantly, it's a place to have fun! See you in the Zone!



FIGHTER ACE: WINNING TIPS AND STRATEGIES

Fighter Ace is Microsoft's first "made-for-medium" game designed exclusively for Internet play on the Microsoft Internet Gaming Zone (the IGZ or Zone). It's also the first Premium pay-for-play game on the Zone as well—Fighter Ace carries subscriber fees that allow players to buy a Zone Premium Subscription to play by the day or by the month.

At its very heart, Fighter Ace is an online World War II air-combat game that combines 16 historically-accurate, replicated aircraft from the United States, Britain, Germany, and the Soviet Union with realistic aircraft graphics and terrain modeling. Game play features team play with variable difficulty (rookie through advanced) for over 100 players per flight arena.

While the thrill of air combat is the main appeal of Fighter Ace, there's much more to the experience. Just as you may have encountered with other IGZ gaming experiences, don't be too surprised if you meet people who share more than a passing interest in planes and



Fighter Ace—you've got your flight, your fighter aircraft, your competition, and your rush of adrenaline!

dogfighting. That's what online gaming is all about. Although Fighter Ace was designed to be easy to set up and install—it requires only minimal skill and effort to get up in the air—the art of air combat is a whole different ball game. This section of the book covers setup tips and the essential skills you should learn. Armed with these critical details, you'll be able rule the virtual skies of Fighter Ace.



PREFLIGHTING YOUR BIRD

In the real world, preflighting your aircraft means running the safety check. Only a pilot with a death wish just hops into an airplane and takes off without it. That's because an airplane is a complex machine and you're eventually bound to run into trouble if you forget or neglect the preflight check.

That's basically true in *Fighter Ace*, too. Although because it's a computer simulation, the only thing at risk is your virtual life, (and maybe your pride), you need to setup or check several things *before* taking off into the wild blue yonder. This chapter covers the hardware and software details that can make or break your flight.

Hardware Requirements

If you're on the Zone, you already have more than the minimum hardware and software requirements to play *Fighter Ace*. If you've never visited the Zone before and aren't a Zone member, please refer to Section One to learn how and what it takes to get Zoned.

Just as we discussed in the Zone section, when it comes to gaming, more and faster hardware is better. Following is the recommended hardware configuration for *Fighter Ace*.



Neglecting the preflight check can lead to mighty short flights.

As always, you have nothing to lose and everything to gain by meeting or exceeding the recommended configuration.

Fighter Ace Recommended Configuration:

- P-133
- 16MB RAM
- 28.8 Internet connection
- 256-color video card
- sound card
- joystick

Fighter Ace Software

In addition to the Zone software, you also need to have the Fighter Ace software installed on your system in order to play Fighter Ace. The game's software is a self-extracting archive file you download from the Zone, much like all the other Zone software you've downloaded and installed up to this point.

The first time you play Fighter Ace you must download the entire game. From that point on, you're able to download only the new components instead of the whole game when Fighter Ace is updated or patched.

Downloading and Installing Fighter Ace

Although Fighter Ace is a Premium Game, the software is available for free. Downloading it is very similar to downloading trial version software for Retail ZoneMatch games, which we covered in Chapter Two. One difference is that Fighter Ace does not install itself.

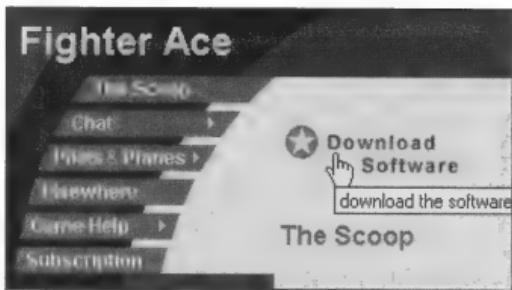
Tip: Regardless of which hardware-configuration standard your system meets or exceeds, do yourself a favor and make sure you've got a good joystick. Flying well requires precision control, and while some desktop pilots can fly well by keyboard alone, most everyone else will benefit from the realism of motion that a joystick provides.

To download and install the Fighter Ace software:

1. Go to the Zone at <http://www.zone.com> and login as usual.
2. Select Fighter Ace from the Games List (under Simulation)



3. Click the Download Software button and you'll be brought to the Fighter Ace Download Page.
4. Scroll down to the bottom of the page and click on the "download" button.
5. After clicking "download," you will be asked what you want to do with the file. Click Save it to Disk.
6. Click OK to save the file to disk.
7. A Save As dialog box will appear. Note the File name (FASetup.exe or something similar) and the Save In folder you're going to save the file in.
8. Click the Save button. This will continue the download and save the Fighter Ace game setup file to your hard disk.
9. After the download is complete, close your browser, log off your service, and close all other applications.
10. Click Start, point to Find, and then click Files or Folders.
11. Type the file name noted in step 6 in the Named box.
12. Click Find Now.
13. When the Fighter Ace game setup file is located, it will appear in a box below. (There may be more than one and you will want to use the most recent copy. You can safely delete the older versions. You can tell which file is the newest by the dates listed under the Modified column.)



Click the Download Software button to move to the Fighter Ace Download Page, where you can download Fighter Ace and find a link to download DirectX 5.0.

14. To install the Upgrade, double-click the file.
15. You'll be prompted to continue installing the Microsoft Fighter Ace software. Click Next.
16. An End-User License Agreement for Microsoft Software will appear. Read through it and click Yes if you accept it.
17. You'll be asked to enter your name in the Name Information box. Correct your name if required, then click on the Next button.
18. Double check your name is the Confirm Name Information box. If it's correct, click the Next button. If you need to change anything here, clicking on the Change button will bring you back to the last step.
19. Your Product ID number will be displayed next. Click on the OK button to continue.
20. A recommended folder to install Fighter Ace into will appear in the next dialog box. If you accept the recommendation, click the Next button, or type in your desired folder or click on the Browse... button to select a new folder.
21. On the Confirm Installation Path box, click on the Install button and Fighter Ace will begin installing immediately afterwards.
22. Once the game files have been installed, you'll be prompted for a folder in which to install the Fighter Ace Launcher. If you accept the recommendation, click the Next button, or type in your desired folder or click on the Browse... button to select a new folder.
23. Once again you'll be shown the Confirm Installation Path box. Click on the Install button and the Fighter Ace Launcher will begin installing immediately afterwards.
24. You'll be notified that setup has finished. Click Finish. At this point it's recommend that you exit and restart Windows so the installation can complete.



Download and Install DirectX 5.0 (if needed)

Fighter Ace requires DirectX 5.0 to be installed on your system if you're running Windows 95. (Likewise, Windows NT users need Service Pack 3.0—which contains DirectX 3.0.) DirectX is a Windows system component that improves computer access to hardware components such as graphics cards, sound cards, and input devices (such as mice and joysticks). If you need to upgrade your current version of DirectX, a link to download the latest version is provided for you on the Fighter Ace Download page.

One quick way to tell whether you have DirectX 5.0 already installed on your Windows 95 system is to check for the Game Controllers icon in Control Panel. To check for the Game Controllers icon, click on the Start button, select Settings, and then Control Panel. If you see the Game Controllers icon you already have DirectX 5.0 installed on your system. If not, you need to download and install this software.

Clicking on the DirectX 5.0 link on the Fighter Ace Download page will bring you to the DirectX



If you have this Game Controllers icon in Control Panel, you already have DirectX 5.0 installed on your system.



Click on the "DirectX 5.0 for end-users" link to download DirectX 5.0.



Here's Fighter Ace's Main Menu Screen.

the Start button on the Windows 95 taskbar. Then select Programs, the Internet Gaming Zone, and Fighter Ace. After the title screen disappears, you're greeted by Fighter Ace's Main

Menu. The various Main Menu selections are covered later on. For now, let's concentrate on setup.

Download Page. Click on the "DirectX 5.0 for end-users" link to begin the download. The download and installation procedure is very similar to the one for Fighter Ace we just covered. The most important difference is that the name of the file you download and use to install DirectX 5.0 is named dxsetup.exe.

Setting Up Fighter Ace

Get underway by clicking select Programs, the Internet Gaming Zone, and Fighter Ace. After the title screen disappears, you're greeted by Fighter Ace's Main Menu. The various Main Menu selections are covered later on. For now, let's concentrate on setup.

From the Main Menu, click the Options button to bring up the Options menu, which presents several option choices. To keep things as organized as possible, Fighter Ace's options have been arranged into four categories. Clicking on the desired category accesses those options. Let's cover each in the order in which they're presented.



Selecting Options from the Main Menu opens the Options menu.



Peripherals

The Peripherals menu is where you configure your keyboard, mouse, joystick, rudder, and throttle. In other words, this is where you setup what you'll use to control your aircraft, film recorder, and views.

Flight Commands and Replay Commands

The Flight Commands and Replay Commands options control keyboard key command designations for Fighter Ace's two keyboard modes—flight mode and film-replay mode. Each mode is important only when you're either flying or watching replay recordings. And since the process and benefits of configuring these keyboard options are identical, we'll discuss them together.

Fighter Ace allows you to *map* (reconfigure) keystrokes to specific game commands. For example, you can change the Fire Gun command for flight mode (while flying) from the Space Bar to the Enter key.

Reconfiguring keystrokes is especially handy if you're really familiar with key commands from another game. You can program them into Fighter Ace so its controls are the same.

You might also map keystrokes if you don't have a programmable joystick because you can map joystick buttons and stick movements to commands as well as keystrokes. Of course, you can use the mapped keystrokes even if you have a programmable stick for odd key combinations your stick can't program properly.

Note: You may need to setup all your options again each time Fighter Ace updates its software.



Configure your keyboard, mouse, joystick, rudder, and throttle from the Peripherals menu.



Keyboard mapping allows you to reconfigure keystrokes to specific game commands.

All About Keyboard Mapping

Each keyboard control functions only if the corresponding flight control is turned off in the Peripherals section of the Options screen. For example, the arrow keys won't control your airplane in flight if the joystick control is enabled.

1. Click on Options, and then click on Peripherals.
2. From the Peripherals menu, click on the Setup button for Flight Keyboard or Film Keyboard.
3. Create a new scheme by clicking New. The New button brings up an edit box where you can name the new scheme. Scheme names can be 31 characters long, but the Scheme-selection box displays only 20 characters (or 21 characters when it drops down). Fighter Ace automatically adds a .key extension.
4. Scroll down the Command list to find the command you wish to change and double-click the corresponding Keystroke or Joystick Setting column.
5. When prompted, press the new key or the joystick button you wish to assign to the selected command. You're notified if the new key or button conflicts with another command. Click Cancel to select another key or button, or click OK to allow the conflict.



- When you've made all your changes, click the **Peripherals** button to return to the **Peripherals Menu**. Your scheme file is automatically saved.

Here are some final notes on keyboard mapping:

The Delete button erases a scheme. First select the scheme you wish omitted from the drop-down menu of schemes, and then click Delete. You'll receive a warning before the scheme is deleted.

The Restore button restores the scheme that's currently listed to the last saved configuration.

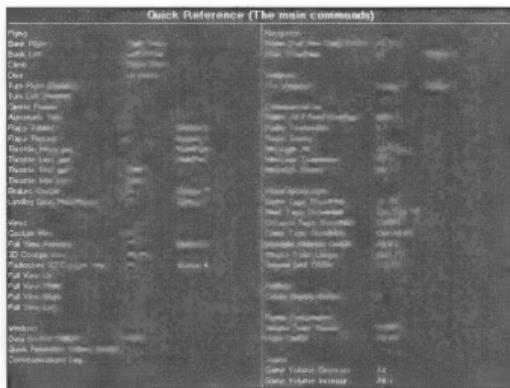
The Command Help menu of all keyboard commands (including any mapping changes) can be called up by pressing F1 while you're in flight or when you're watching replay recordings.

Appendix F and Appendix G contain listings of all default commands (as shipped from Microsoft).

Mouse

The Mouse options are either On or Off (select by checking or unchecking the appropriate box). This option affects only your ability to use the mouse for flying, viewing in 3-D flight mode (more on that later) while flying, and watching replays. It doesn't affect the use of your mouse for menu navigation.

The only reason for turning the Mouse option off is to prevent unplanned input (however unlikely or inconsequential that may be). If you're profoundly trigger happy and think you might move your mouse while flying, select Off. Otherwise, there's not really a penalty for leaving it on.



The Command Help window (press F1 while in flight or while watching replays to access it) reflects any key-command changes made in your current command scheme.



Look for a joystick with a view hat such as this X-Fighter model from ThrustMaster.

Joystick

Your joystick must be installed and calibrated in both Windows (in the Windows Control Panel) and in Fighter Ace in order for it to work correctly. If your joystick isn't properly calibrated, you'll spin out of control as soon as you enter the game—which, needless to say, jeopardizes your chances at becoming an Ace!

The Joystick setting allows three options: On, Off, and Calibrate. If the Joystick option is On, it disables the flight-control keys (all other flight keys remain enabled). To calibrate the joystick in Windows, follow the manufacturer's directions. To calibrate in Fighter Ace, follow these instructions:

1. Click Joystick On, and then click Calibrate.
2. Follow these calibration instructions: 1) Move joystick handle to the upper left corner and press any joystick button; 2) Move joystick handle to the lower right corner and press any joystick button; and 3) Center joystick handle and press any joystick button.
3. When you've finished all three calibrations, click OK.

Tip: *While there are those who can fly well by keyboard alone, for the rest of us mere mortals, a good quality joystick (one that centers fairly well) can mean the difference between life and death. If you're shopping for a new joystick, look for one that feels comfortable and sturdy. Some sticks are better suited for large hands, and some are good for people with smaller hands. The best advice is to check them out in person before buying one.*

If you use a programmable joystick, note that the calibration routine may not work if you've programmed the joystick buttons as key presses. See the joystick's manufacturer instructions for information on restoring your buttons to act as a standard joystick.

Joysticks take a lot of abuse, so buy one only from an established company so that you can get customer or technical support should you have any problems. Thrustmaster, CH Products, and Microsoft are all reliable names



You should buy a stick with a view hat. Even though you can map Fighter Ace's commands to use joystick inputs, a joystick with programmability features, such as ThrustMaster's F-22 Pro, can be handy in Fighter Ace and other games. Rotational capabilities and features such as a throttle slider are helpful if you don't plan on buying separate throttle and rudder controllers.

Got a Stuck Joystick?

Sometimes things go wrong in spite of the best-laid plans. If you have problems getting Windows or Fighter Ace to recognize your joystick, or if your joystick refuses to calibrate, try one of these troubleshooting solutions.

Almost every new computer has a game port either built into the motherboard, located on a multi-function card, or located on a sound card. Unfortunately, some game ports don't work correctly with high-speed computers, causing calibration problems. So don't overlook the game card as a possible cause of your trouble.

A dedicated, speed-adjustable game card is by far the best to have, but it isn't always necessary. Make sure your game card is really the problem before replacing it. Some of the most common problems are:

- More than one game card or game port might be installed in the system. If so, make sure only one of them is enabled. See your game card or sound card instruction manual for details on how to disable any extra game cards or ports.



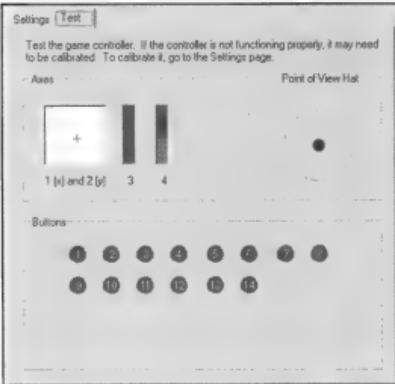
The CH F-16 Combatstick features a throttle wheel at its base.



The sheer flexibility of a programmable stick such as Thrustmaster's F-22 Pro justifies the extra money it costs in comparison with a no-name brand.



Don't overlook the game card as a possible cause of calibration problems. It might take a dedicated, speed-adjustable game card to work correctly in a high-speed computer.



If you can't calibrate your controllers in the Windows 95 Game Controller Properties Test tab, they won't calibrate in Fighter Ace.

- If one or more of your game ports are Plug-and-Play types, Windows 95 sometimes has trouble figuring out which to keep activated. One solution is to power-down the system and then remove all game cards. Install the one you want to use and set it up in Windows 95. Next, power-down the system again, re-install the remaining cards, and tell Windows 95 to disable or remove the new game port device(s).

- Maybe the Windows 95 joystick driver is missing or is installed improperly. See your Windows 95 manual or joystick-manufacturer's instructions for details on proper installation.

- The Windows 95 joystick configuration may not be properly selected. Make sure the joystick type you've selected has the required number of axes for your setup. For instance, the "4-button flight yoke w/throttle" configuration works with a four-button joystick and analog throttle. Selecting the check box enables rudder pedals.

- Make sure the calibration of the Windows 95 driver is correct. If you can't calibrate your controllers in the Windows 95 Game Controller Properties Test tab, they won't calibrate in Fighter Ace, either. If you have the proper driver



and joystick selected, any problems here might mean your joystick or game card is malfunctioning. The only way to find out for sure is to swap them out for ones you know work properly.

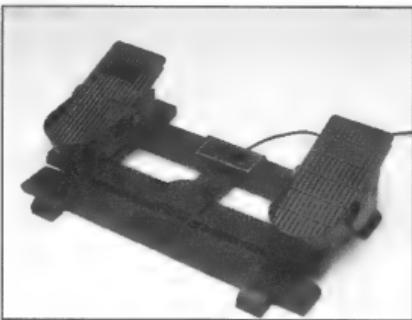
Many controller problems aren't hardware related. Most of the time, in fact, they're just set up incorrectly. If you have a programmable joystick such as a ThrustMaster FLCS or an F-22 Pro and currently have the view hat or buttons programmed for digital operation (which mimics key presses), the calibration routines won't recognize these as joystick signals.

Pedals

The Pedals selection allows three options: On, Off, and Calibrate. If you have pedals, use them. But they're not an absolute must in Fighter Ace if you fly at the Simple Physics Level (or in the Arcade Arenas). However, if you're going to fly at the Realistic Physics Level or in the Realistic or Advanced Arenas, consider purchasing a quality set of pedals such as the ThrustMaster RCS or a joystick with rotational capabilities such as the Microsoft SideWinder 3D Pro. You can calibrate the rotation on this type of joystick to act like rudder pedals.

To configure rudder pedals:

1. Click Pedals On, and then click Calibrate.



Consider purchasing a quality set of rudder pedals such as the ThrustMaster RCS if you're going to fly at the Realistic Physics Level.



A joystick such as the Microsoft SideWinder 3D Pro has rotational capabilities and a throttle slider all in one.

Tip: *Outdated drivers for the SideWinder 3D Pro can calibrate the device properly in the Windows control panel, but then not recognize the joystick when you're playing a game. You need to order an updated driver (check www.microsoft.com), but in the meantime, you can temporarily set your joystick to a custom, 3-axis, 4-button joystick, with the Rudder Control box checked in the control panel. This disables four buttons on the 3D Pro, but it allows you to use the joystick until you can replace the driver.*

2. Follow these calibration instructions: 1) Move Pedals to the left position and press Enter; 2) Move Pedals to the right position and press Enter; and 3) Center Pedals and press Enter.

3. When you've finished all three calibrations, click OK.

And when configuring a joystick with rotation capability:

1. Click Pedals On, and then click Calibrate.
2. Follow the on-screen directions. You'll use the rotational capabilities whenever pedal movements are called for.
3. Click OK when you've finished all calibrations.

Throttle

Just as with the Joystick and Pedals selections, the Throttle selection allows three options: On, Off, and Calibrate. Note that this setting works only for analog throttles and not for digital ones (throttles that send keyboard controls instead of a joystick axis signal—see your joystick or throttle controller documentation for more information).

To configure throttle sliders or throttle device:

1. Click Throttle On, and then click Calibrate.
2. Follow these calibration instructions: 1) Move Throttle all the way back and press Enter; and 2) Move Throttle all the way forward and press Enter.
3. Click OK when you've finished both calibrations.



Sound

The next set of options are for the Sound menu. As the name suggests, this is where you can set and adjust the sound levels in *Fighter Ace*. Here's an explanation of what they are and why certain settings might be better than others.

Game Volume

The Game Volume option offers you two choices: On and Off. You can adjust the volume with a slide control next to the check box.

Naturally the slider works only when Game Sound is enabled. To operate the volume slider, click on the desired setting position on the slider or click and hold on the control and move it to the desired setting.

Game Volume controls the decibel level of machine-gun fire, cannon fire, engine noise, airplane hits, crashes, and explosions. While there's something to be said for loud explosions and crashes for enhancing game play, turning up the Sound isn't always as purely self indulgent as it may seem.

For example, the other sounds (especially airplane hits and weapons fire) all directly relate to your current situation. The audio cues can reveal things to your ear that your eyes might not see. So consider setting Game Volume to a high level. Then use the Master Volume (the next setting) to adjust overall sound to your comfort level. The volume can be adjusted in-flight by pressing Alt-- (Alt Minus) to decrease the volume and Alt-= (Alt Equals) to turn it up.

Master Volume

Master Volume, also with On and Off choices, controls game sounds and anything else playing sound, such as CD-ROMs. Master Volume lets you control the mix or balance between *Fighter Ace*'s sounds and all other sounds playing on your computer, as well as the overall volume of the game.



*Adjust the sound levels in *Fighter Ace* from the Sound menu.*



Graphics options affect what you see on your monitor and can help compensate for computer limitations.

Tip: If you can't find a comfortable balance of graphics, speed, and detail, try adjusting *Fighter Ace's* screen size by pressing *Ctrl-gray-* (*Ctrl Gray Minus*) and *Ctrl-Gray+* (*Ctrl Gray Plus*) to decrease and increase the size of the flight-view window. (*Gray Minus* and *Gray Plus* refer to the + and - keys on your numeric keypad.) The less your computer has to draw, the faster it works.

you're engaged in a real-time game (one that unfolds as you play it), any interruptions such as graphics stuttering or slow updates can devastate your combat performance. You're looking for a combination of fluid on-screen motion and acceptable graphics, but only you can decide what's acceptable for you.

Unfortunately there's currently no substitute for state-of-the-art hardware, so choosing between high-resolution graphics and frame rate is a never-ending dilemma for both simulation fans and developers. While everyone can usually find an acceptable balance between scenery and game play, the heat of battle can tilt the playing field.

Use the slider control for changing the volume of music and sound. The Master Volume can be adjusted in flight by pressing *Ctrl-Alt-* (*Ctrl Alt Minus*) to decrease and *Ctrl-Alt=* (*Ctrl Alt Equals*) to increase the volume.

Graphics

Fighter Ace's Graphics options not only affect what you see on your monitor, but they can also help compensate for hardware-performance limitations.

There's always been a trade off between the complexity of graphics and the speed at which they're redrawn (frame rate) to produce the illusion of movement. *Fighter Ace* is no exception.

Everybody wants super graphics and silky smooth frame rates. Of the two, however, frame rate is most important to a flight sim. When

CHAPTER THREE: PREFLIGHTING YOUR BIRD

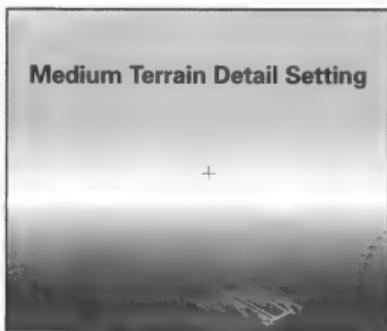


Even if you can't find a comfortable balance between graphics speed and detail, you can shrink Fighter Ace's screen size to help speed things up. (Clockwise, from upper left)





Low Terrain Detail Setting



Medium Terrain Detail Setting

The Low Terrain Detail setting (above left) has no ground textures. Only ground textures for airports and landmarks are displayed in the Medium Terrain Detail setting (above right).

Terrain Detail

You can choose from among High, Medium, and Low as the Terrain Detail setting. The selections break down this way:

Low: Shows a green ground punctuated by brown and tan rectangles. No ground texture (photo-realistic pictures that mimic surface textures of the objects they simulate) is displayed.



High Terrain Detail Setting

The High Terrain Detail setting shows full ground and landmark textures.

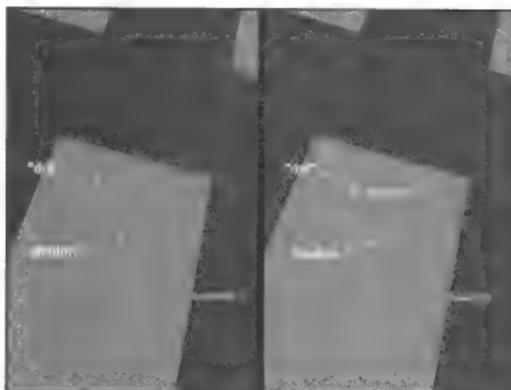


Medium: Only ground textures for airports and landmarks such as mountains and forests are displayed.

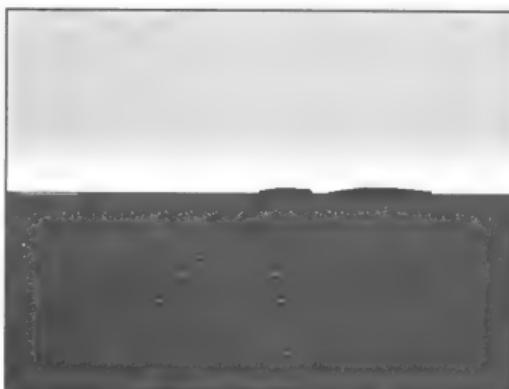
High: Full ground and landmark textures are displayed.

Reducing Terrain Detail conserves memory, which, in turn, facilitates faster game performance. While the ground textures are one of the coolest things about *Fighter Ace*'s spectacular graphics, they're not important for air combat. You're up there to fight—not to enjoy the scenery. So if you need to turn some details off to increase frame rate, do it! Not only does it speed up your graphics, but it also can help you identify aircraft before they come into Tag range (more on that later).

On the other hand, some pilots like to keep ground textures enabled because it gives them a sensation of speed—and, more importantly, it offers a point of reference for judging their altitude. This is a valid point, but a feature in *Fighter Ace* called Ground Grid in Low Terrain Detail mode (press Ctrl F3 to toggle Ground Grid



At the lowest Terrain Detail setting, you're able to see aircraft dots and shadows (left) before they come into Tag range (right). This can be an advantage in a dogfight.



While not as awe-inspiring as the ground textures, the Ground Grid option can provide a reference for judging your altitude.

on and off), while not as awe-inspiring as the ground textures, can convey the same effects.

Fighter Ace's Ground Grid feature works like an invisible sphere attached to your airplane that only appears, as the ground grid, where this sphere *touches* the ground. The actual sphere is 6000 feet in diameter, so in addition to appearing only while in Low Terrain Detail mode, it becomes visible only when you're below 3000 feet (one-half the diameter of the sphere).

Unfortunately, when you're in level flight, the grid appears as a small circle directly below you. So in reality, although the ground grid appears below 3000 feet, it becomes useful for most pilots only at around 2500 feet.

Finally, if you're worried that you'll miss some scenic views if you turn down Terrain Detail, perhaps you'll rest easier if you know that the ground textures repeat continuously. What you see in the combat area gets repeated over and over no matter where you fly. But while the ground textures repeat, the physical layout or *world* does not.



Enabling the Ground Object Detail option adds textures to ground objects such as buildings and trucks.

the details of ground objects. So of all the graphics in the game, you'll miss these the least.

Ground Object Textures

The Ground Object Texture option has—surprise!—two settings: On and Off. Enabling this option adds textures to ground objects such as buildings and trucks. We're basically talking about all the stuff found around the airports.

Just as with the Terrain Detail option, turning down (or off) Ground Object Textures conserves memory and increases game performance. Other than when you're taking off or landing, you really won't have time to admire



Smoke Length

The Smoke Length option refers to the smoke seen when an aircraft, truck, fuel tank, or building is damaged. The drag bar changes only the physical length of the visible smoke, not the time it's visible. This option is adjustable in flight by pressing Shift F4 to increase the length of smoke and CtrlF4 to shorten it.

The darker the smoke, the more damage you've inflicted or received. It's almost as good as putting a neon sign on the wounded that says, "Shoot me! Shoot me!" Make the Smoke Length as long as possible for quick recognition of easy targets. It doesn't impact graphics performance enough to give up the benefits of that long line of smoke.

Haze

As its name implies, Haze is the fog-like (or smog-like depending on where you live in the real world) layer that lingers over the Fighter Ace horizon. You can select On or Off options, or toggle it while flying by pressing Alt F8. Note that Haze appears only when you're high in the air, and it disappears when you're closer to the ground.



This is what the ground objects look like without textures.



Smoke appears around an aircraft when it's damaged. It makes it more simple to identify "easy" targets to kill.



While visually impressive, Haze isn't conducive to detecting bandits or fast-graphics performance.



Turning Haze off also allows you to see further and clearer.

Turning off Haze definitely speeds rendering performance and has the added benefit of allowing you to see further and clearer than when it's enabled. During and before WWII (before the widespread availability of radar), much of the success of combat pilots was attributed to their excellent eyesight. As you'll see when we discuss tactics, seeing your opponent before he sees you allows you to dictate the battle. While the Tag options (covered in the next chapter) may minimize this advantage, turning off Haze can still help you in this area. The game's not as neat without it, but leave it off anyway.

Other Options

Last, but not least, is the Other Options menu. There are only two selections here—



Physics Level and Measurement Units. Both can have a profound effect on your game.

Physics Level

The Physics Level option affects offline and private game flying. In the online public arenas, Physics Levels are determined by the Zone. You can play Fighter Ace using either one of two levels of physics: Simple or Realistic. These, of course, refer to the flight characteristics of the aircraft you're flying. We'll discuss the whats and whys of these later on. For now, it's probably simpler just to explain what features Realistic includes and point out that Simple doesn't include them.

The Realistic Physics Level introduces:

- Progressive rudder control
- Less-accurate digital altimeter (displays only in increments of ten feet/meters)
- No air brakes
- Flap and landing-gear damage from deployment at excess speed
- Torque effects
- Stalls and spins
- Throttle controls altitude
- Anything to dowith drag

Measurement Units

The Measurement Units option changes the measurement displays from feet to meters. You're presented with three measurements while playing Fighter Ace—altitude, airspeed, and distance. If you prefer calculations of distance in meters and kilometers instead of feet and knots, your choice is clear. But there is another point to consider.



Other Options can have a profound effect on Fighter Ace.



The problem with using the Meters option is that you can exceed 600 kilometers per hour in level flight. This exceeds the reporting abilities of the airspeed indicator's dial readout.

When you fly with the cockpit display in view, high airspeeds (which can exceed 600 Kilometers per hour in level flight) can overrun the reporting abilities of the airspeed indicator's dial readout on the cockpit-instrument panel. This may not be a big deal if you routinely use the digital-airspeed readout in the top left-hand corner of the screen, but for some pilots, the dial readout is quicker and simpler to interpret. If you fit into this category, feet is the only selection you'll be able to use.

Now that we've covered the preflighting duties, we're ready to move on to the basics of Fighter Ace!

Chapter Four



CLEARED FOR TAKEOFF

Now that you've finished preflighting Fighter Ace, there's nothing left but to take off into the (virtual) wild blue skies. This chapter takes you through signing onto Fighter Ace, navigating the Fighter Ace game rooms, and learning the Fighter Ace fundamentals.

Even if you're not interested in Fighter Ace tactics and strategies at this point, the information presented here is critical to your understanding of how Fighter Ace is played. Just as with preflight, a few minutes spent here can save you hours of head-scratching.

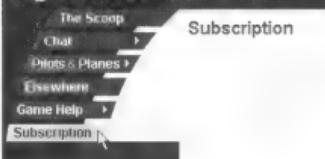
Signing onto Fighter Ace

Naturally, in order to play Fighter Ace, you must connect to the Zone. Signing onto the Zone was covered in Section One of this book, so we'll skip repeating all those details here. But as a quick re-cap, here's how one signs onto Fighter Ace:

1. Establish a connection to the Internet. (To achieve maximum performance in Fighter Ace, an Internet connection with a rate of at least 28.8Kbps is highly recommended.)
2. Access the Zone at <http://www.zone.com>.
3. Select Play Games Now from the Welcome screen.
4. Enter your Zone Member Name and Password.
5. Select Fighter Ace from the Simulation Game List to enter the Fighter Ace game room.

Purchasing Zone Premium Subscriptions

Fighter Ace Subscriptions are currently \$1.95 for a single Day Subscription that's good for 24 continuous hours from the time of purchase. A Monthly Subscription costs \$19.95 and gets you unlimited Fighter Ace gaming for one

Fighter Ace

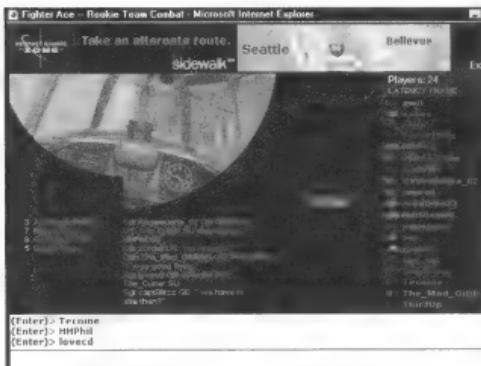
Fighter Ace Subscriptions are currently \$1.95 for a Single Day Subscription and \$19.95 for a Monthly Subscription.

Fighter Ace rooms appear slightly different than the rooms we've seen in Chapter Two, they're basically the same in look and function. On the right is the Player List with Latency Indicators. You have the option of chatting to find opponents, and clicking on Exit brings you back to the Fighter Ace room.

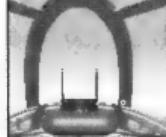
The only difference you might notice is the indicator on the left of the display that shows how many players in each team are currently playing. In addition, the center of the screen displays the radio and system messaging (chatter) that's taking place in the game. Although you can chat from the ZoneMatch room, your chatting is restricted to the room itself. When you're

ready to fly, click on Fly Now, but before you scramble your aircraft, let's talk some more about Fighter Ace's ZoneMatch rooms.

Fighter Ace's ZoneMatch rooms are categorized by arena, skill level, and game. This means Fighter Ace can be played in a myriad of game and playing combinations. Let's start by talking about specifics for each category. From there it'll be easy to understand how each category affects the way Fighter Ace is played in each ZoneMatch room.



The Fighter Ace Arena ZoneMatch room is basically the same in look and function as other ZoneMatch rooms.



Arenas

The Fighter Ace Arena dictates the Physics Level used by every ZoneMatch table within that arena. The Arcade arena games use the Simple Physics Level setting, and the Realistic Arenas use the Realistic Physics Level setting. For details on Physics Level settings, please see Chapter Three.

Skill Levels

Fighter Ace is played on three skill levels—Rookie, Intermediate, and Advanced. Note that skill levels have no bearing on the Physics Level used in any arena. This means there can be a Rookie level game in, for example, both the Arcade and Realistic arenas.

Playing at the Rookie skill level won't affect your permanent score, and only players below the rank of Second Lieutenant are allowed to play there. (Because your score doesn't count at the Rookie level, you can't advance in rank or earn Aces there.) There's no shame in starting at the Rookie skill level. It's there to help you get started if you're a beginner, and *everyone* is a beginner at some time—whether they admit it or not!

The Intermediate skill level introduces anti-aircraft fire, limited fuel (about twelve minutes worth), ammo, and G-effects (black-outs and red-outs). Scores are recorded at this level so your kills and deaths count in determining your rank. (We'll discuss those details later.)

At the Advanced skill level, you're subject to all the attributes of the Intermediate skill level with the exception of radar, which is made unavailable. You're also limited to Cockpit Views. Naturally, only the most skilled players should attempt to compete at this level.

Games

Regardless of which Arena or Skill level you choose to fly, there are three games to play: Free-for-All, Team Combat, and Private Games. We'll discuss tactics and strategies for each specific game type in Chapter Six.

Free-for-All Game

Just as its name suggests, this arena features a continuous dogfight where everyone is the enemy. To draw an analogy, this is the equivalent of a Doom death match in air combat. Any plane is fair game, and when a plane is shot down, it's counted as a kill.

In terms of game play, you're not restricted to planes from any single country, and you have unlimited fuel and ammo. Players also start off in mid-flight rather than taking off from a runway. With new players joining and leaving all the time, game play is fast and furious. If you need a quick Fighter Ace fix, you'll find it here.

Team Combat

Team Combat is considered the standard Fighter Ace game. There are four countries (each with a camp or airbase) competing against each other. Kills are registered if a plane from an opposing camp is shot down. This game also runs continuously, with new players joining and leaving all the time. When you enter Team Combat, you choose one of four countries to join, and then you're able to choose one of two planes.

Other than the addition of teams, the main difference between Team Combat and Free-for-All is that you must now take off from a runway, and fuel and ammo are no longer unlimited. Pilots interested in team combat tactics and strategy will enjoy this game.

Private Arena

Private Games are those you and your friends (over 100 of them!) can play. Game play is the same as in the Team Combat Game, but scores aren't kept.

To Host a Private Game:

1. Chat with other players and make sure they know:

In which ZoneMatch room the Private Game will be held and the host-issued game password (if one is used to limit access). To keep the password private, use ZoneMessage to send it to each player.

2. Move your cursor to an empty game table and click the host button when it appears.
3. Fill in game name, number of players, and password (if used) in the "Enter Game Parameters" box.
4. When all players have joined, click on the Launch button.



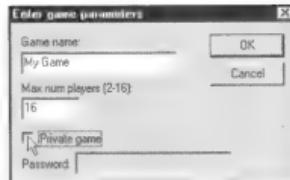
Game tables indicate the number of players by the number of "lit" circles displayed and the number in the upper right-hand corner. The Lock icon shows that this game is password protected.



Join non-password protected games by moving your cursor to the game table you wish to join and then clicking the Join button.



Moving your cursor over an empty game table causes the host button to appear.



Check the "Private Game" box and type in a password to limit access to your game.

Note: The Practice Flight selection on the Main Menu (offline only) allows you simply to practice flying. There's no one else flying here so you can learn to fly without worrying about being shot down. But the aircraft selection is limited and other options are available only while you're online.

To Join a Private Game:

1. Chat with other players and make sure you know in which ZoneMatch room the Private Game will be held, who's hosting the Private Game, and the host-issued game password (if one is being used).
2. Move your cursor to the game table that you wish to join and click on the Join button when it appears.
3. Now you just wait for the host to begin the game. If you're joining a game that's already in progress, you'll need to click on a second Join button, located at the bottom of the game table chat box.

Playing Fighter Ace

Once you've selected an arena in which to compete and clicked on the Fly Now button in the ZoneMatch room, Fighter Ace's program begins. You won't begin flying right away. There are a couple of other selections to make. We'll discuss the tactical advantages of these selections in the next two chapters. For now, let's just go over what the selections are and how to make them.

Navigating Fighter Ace

Once you've selected a Fighter Ace arena, you're presented with Fighter Ace's Main Menu. Although the Main Menu—when you're connected online—may look the same as the one from the configuring sequence, notice that "Fly" now replaces "Practice Flight" as the first selection. The Main Menu choices are:

Fly: Click this button to continue the selection process and enter your chosen arena.

Options: This selection lets you access the setup options we covered in Chapter Three.

Watch Replay: Use this selection to view "gun camera" films created by yourself and other pilots.

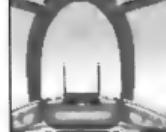
About: You're able to view Fighter Ace's credits here.

Exit: Use this selection to exit Fighter Ace and return to Windows. You're prompted by a message confirming your choice before you actually leave Fighter Ace.

Select Camp

Regardless of whether you've selected the Free-for-All, Team Combat, or Private Game, you're presented with the Select Camp window after you click on Fly from the online Main Menu. You can choose from four camps—American, British, Soviet, or German. *If* you have a choice, it should depend on the aircraft you wish to fly. This is because each camp offers two unique and specific aircraft, and you can choose only one of the two that the camp offers.

You may not have a choice about aircraft, however, because the maximum number of players in each camp is regulated by the Zone (for a total of more than 100—total players—per game). If one camp has 20 percent more members



than another, no new players can join it until the numerical imbalance is corrected.

Conversely, if one camp has 30 percent fewer members than the average, all new players must join that camp.

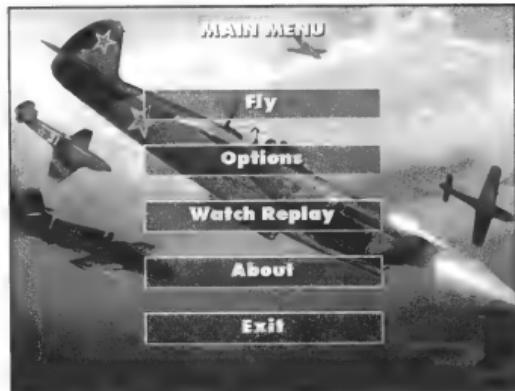
Choose A Plane

After choosing a camp (if you're playing Team Combat or Private Game), the Select a Plane window appears. If you're playing the Team Combat or Private Game, you're allowed to choose from only the four aircraft offered by that camp.

Otherwise you're able to choose one of the 16 airplanes available from any of the camps. We'll cover the specifics about each aircraft—such as strengths and weaknesses—in Chapter Six: Flight Performance.

Fighter Ace Ground School

At this point we should cover some of the basic terminology, flight instruments, and Fighter Ace displays we'll be using throughout the rest of this



The online Main Menu lists Fly as the first selection.

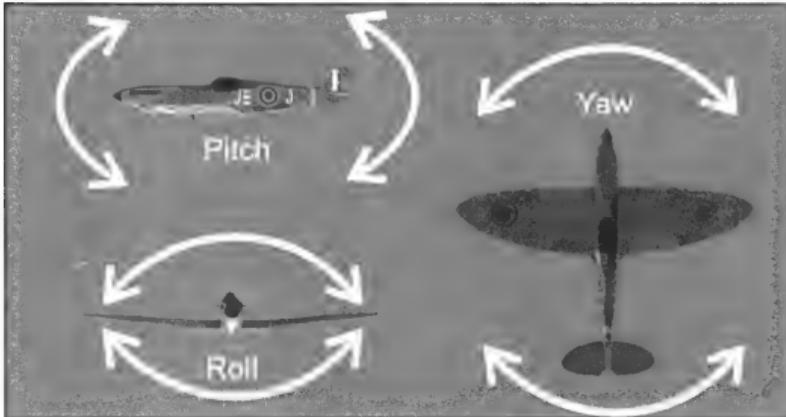


The only real reason to choose one camp over another is to be able to fly its specific aircraft.



Choosing the American camp gives you the option of selecting any of these aircraft to pilot into battle.

extending from the nose of the aircraft through the tail), and yaw (turning about the vertical axis).



Aircraft maneuver along the pitch, roll, and yaw axes.

book. To help you understand the concepts we'll be discussing, we need to get this material out of the way. Rather than bog you down with too many abstract concepts all at one time, we'll go over what we need to at the appropriate times.

Flight Axes

Airplanes maneuver along three axes. These axes are known as pitch (turning about the lateral axis, with the front end rising and falling), roll (sometimes referred to as bank, or turning on the axis



Cockpit Instruments and Displays

Before we actually get you in the air and let you take control of an airplane, it's best to go over some of the basic flight instruments you'll be using. Because you'll be flying aircraft manufactured in four different countries, the exact layout (mounting position) of each dial and indicator will vary from plane-to-plane. Regardless of where they're located, however, they each provide the same information. Once you become familiar with how to read them, new, unfamiliar orientations won't hamper your ability to use the information they provide.

When you, as a new pilot, first look at an airplane's instrument panel, don't be surprised if you hit information overload. But after a few minutes of observation, you'll notice that not all the dials in Fighter Ace's cockpits move. This was the result of a conscious effort to cut down on pilot workload while maintaining the look and feel of the actual aircraft. Only the instruments most relative to air combat are functional. Let's talk about each, what they do, and how to read them.

Tip: *To leave Fighter Ace temporarily and access the desktop, press Alt-Tab to minimize the Fighter Ace game window. Return to Fighter Ace by clicking its button on the desktop taskbar or pressing Alt-Tab again. While you're away from the game, your plane is defenseless! It's best to switch away from Fighter Ace only when you're not in flight.*

Altimeter

The altimeter is arguably the most important instrument in an airplane. Simply put, it tells you how high you are. Because your goal is to remain flying, knowing how high you are is pretty important. Unfortunately the altimeter in Fighter Ace (like all altimeters) doesn't tell you how high you are above the ground over which you're flying (unless the particular ground in question is exactly at sea level); rather, it indicates how high you are relative to a reference point. In the real world, the universally accepted reference point is sea level.

Fighter Ace's altimeter display comes in two "flavors"—an instrument-panel-mounted dial display which isn't visible in Full Screen mode (we'll get to it) and a digital display located in the

Tip: *The digital altimeter display turns red when your altitude drops below 165 feet (50 meters) above ground level.*



A digital altimeter is located in the upper left-hand corner of the in-flight screens.



The analog altimeter (dial display) is located on the instrument panel.

upper left-hand corner of the screen while you're in flight. You can distinguish the digital altimeter from the other instrument's numbers displayed there by the "A." The numbers adjacent to the A indicate your altitude.

The measurement unit you chose in the Other Options menu determines the units being displayed. Readings presented in feet are marked with a lowercase "f." Conversely, readings presented in meters are marked with a lowercase "m."

The altimeters in Fighter Ace all begin with a zero in the 12 o'clock position and have ten major "ticks" or markings round the bezel. But perhaps the one feature that makes the altimeter stand out from the other gauges is that it has two hands just like a clock. (Real altimeters have three hands, or two hands and a digital readout. Because Fighter Ace's version only has two hands, it becomes useless above 10,000 feet.)

The "big" hand indicates units of one hundred, and the "little" hand indicates units of one thousand. That means if the altimeter's little hand is pointing a little before the number eight and the big hand is on the nine, you're flying at 7900 feet (or meters depending on your measurement-unit setting).

Airspeed Indicator

If the altimeter is the most important instrument for flying, the airspeed indicator is the most important for air combat. We'll discuss exactly why in the next chapter, so let's just talk about the instrument itself right now. You can easily pick out the airspeed indicator from the other dials on the instrument panel by the numbers on its face. The airspeed indicator is the only instrument with the numbers 150, 300, and 450 on it.



The airspeed indicator is the only instrument with the numbers 150, 300, and 450 on it.

To read your airspeed, look at the number adjacent to the position of the single-hand pointer. Depending on the measurement units chosen, your airspeed will be in kilometers per hour or in nautical miles (knots) per hour. A digital version of your airspeed indicator is located in the upper left-hand corner of the flight screens. It's the first set of numbers displayed there—you can



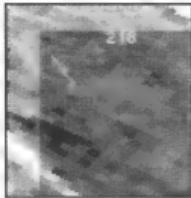
recognize it by the uppercase letter "S" preceding it. What you read here is exactly how fast you're going.

Tip: Digital onscreen displays are toggled with the S key.

Compass

The compass is the only display on your instrument panel that rotates horizontally. As you'd expect, the compass gives you directional information relative to magnetic north. (In real life true north and magnetic north are two different locations.) Naturally, North is represented by the letter N, East by E, South by S, and West by W. The number shown on your compass is the direction in which the nose of your aircraft is pointed.

There is another compass (more properly named a heading indicator) available on the radar screen. Access this compass by pressing Alt-M. To access the radar screen, you must first go to Full Screen forward view by pressing [(open bracket). The digital readout shows your current heading at the top of the radar screen in white lettering.



A digital compass (heading indicator) can be viewed when using the radar screen.



The compass gives you directional information relative to magnetic north and is the only display on your instrument panel that rotates horizontally.

Bank Indicators

Well, we'll call them Bank Indicators—what's actually depicted in Fighter Ace are Turn Coordinators and Turn-and-Slip Indicators. But instead of working like their lookalike counterparts, they convey only banking information. Two versions of this Bank Indicator are in Fighter Ace. One type is found in the Russian planes. You'll recognize it from the little black ball that moves around in the middle of the instrument when you bank. You can pick out the other type of bank indicator by the telltale silhouette of a little airplane placed in the center of it.

Regardless of which bank indicator you're using, this instrument provides feedback of whether your plane is banked from level and by how much. It works this way: when you bank your plane, gravity moves the



One type of bank indicator is found in the Russian planes. It uses a little black ball to convey information.



This bank indicator uses a silhouette of a miniature airplane.

ball toward the ground while the airplane silhouette remains level with the ground. In other words, the bank indicator tells you only how much of a bank you're in. The little airplane doesn't represent which way your airplane is banking. To make your airplane fly level, make the airplane level in the gauge or return the ball back to center.

To be candid, the bank indicator is of dubious value in *Fighter Ace*. While it's handy for flying level in clouds when you can't see the horizon, you never run into a cloud layer bad enough to require it in *Fighter Ace*. It's also unlikely that you'd ever want to be flying perfectly level in combat. So here's the bottom line: the extreme

bank and pitch attitudes you're flying in *Fighter Ace* renders this device less useful than in less hectic flight conditions.



Although it moves in unison with the Power Indicator, this gauge was meant to mimic the manifold pressure gauge. In reality, it doesn't show anything more than the RPM Indicator already does.



The Engine Power Indicator looks like the altimeter, but it has only one hand and 0 (zero) is not located in the 12 o'clock position.

Of T:100 D:0%
0.11m

A second throttle position indicator can be found in the upper left-hand corner of the screen.

Engine Power Indicator

Although the Engine Power Indicator in *Fighter Ace* displays engine information that corresponds to what's shown on an Engine RPM tachometer in real life, it behaves more like a throttle position indicator in this game and tells you only what percentage of throttle you've applied. While it looks similar to the altimeter, the main differences between an altimeter and the Engine Power Indicator are that the 0 (zero) isn't located in the 12 o'clock position—it's between the 1 o'clock and 2 o'clock position. And instead of two hands, this device has only one.

Furthermore, if you're flying a twin engine aircraft such as the P-38, both engines are represented by a single Engine Power Indicator. You may notice there's another instrument that moves in unison with the RPM Indicator, but doesn't look quite the same. This gauge was meant to mimic the



manifold pressure gauge of a real airplane. But as far as Fighter Ace is concerned, it's there only for effect and tells you nothing more than the RPM Indicator already does. The way to read the Engine Power Indicator is to add a zero to the percentage number indicated. For instance, if the hand is pointing to the eight, its reading is 80 percent throttle.

A second throttle position indicator is found in the upper left-hand corner of the in-flight screens. The readout is preceded by an uppercase letter "T". On some airplanes you can go beyond 100 and enter WEP. But more on WEP later on.

Damage Indicator

The Damage Indicator is located next to the digital throttle position indicator in the upper left-hand corner of the flight screens. This number is preceded by the uppercase letter "D" and indicates the percentage of damage you've sustained. Damage and repair are discussed later; all you need to know now is that if you see 100 percent damage on this indicator, it means your aircraft will shortly create a large smoking hole in the ground.

T:Off **D:98%**
Flaps

The Damage Indicator shows you the percentage of damage you've sustained. When this reaches 100 percent your plane is doomed.

Landing Gear Status

The Landing Gear Status Indicator also appears in the upper left-hand corner of the flight screens. It looks like an uppercase "G" and appears whenever you extend or retract your landing gear (by pressing G), or whenever you've sustained landing-gear damage. Notice that the indicator disappears when your landing gear is retracted and undamaged.

D:0%
D:0% G

The color of the Landing Gear Status Indicator shows condition: bright red (top) is down and locked; dark red (bottom) indicates an unsafe condition.

The G's color indicates the status of your landing gear. Dark red indicates an unsafe condition, while bright red indicates down and locked position, ready for landing.



The Brake Indicator appears when wheel brakes (and air brakes, depending on the arena) are activated.

Brake Indicator

The Brake Indicator appears—surprise!—in the upper left-hand corner of the flight screens; you activate it by pressing B. A yellow B appears when your brakes are activated and disappear when they're not. Note that this key command operates both the wheel brakes and air brakes of your aircraft (even though some of the aircraft modeled in Fighter Ace didn't have air brakes or spoilers in real life, brakes and spoilers are modeled in some arenas).

Rudder Position Indicator

The Rudder Position Indicator appears directly under the digital airspeed and lets you know where your rudder is positioned. This display becomes red in color when the rudder is moved to any position other than neutral. 0 (zero) indicates neutral, negative numbers indicate right rudder, and positive numbers indicate left-rudder positioning. This readout is especially handy if you use the keyboard for rudder control. Flying around with unwanted rudder input negatively affects your airplane's performance.



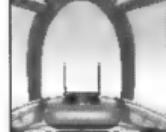
If your flaps are damaged, the Flaps Indicator sends you this no-nonsense message.

Flaps Indicator

Flaps are the moveable panels on the wings that can be extended to increase lift. Perhaps the easiest indicator to read and comprehend is the Flaps Indicator located next to the AOA Indicator. It literally spells out the position and condition of your flaps. Depending on the type of airplane you're flying, this readout will indicate degrees of deployment or specific setting positions such as maneuvering, takeoff, landing, or takeoff and landing. If your flaps are damaged, this indicator lets you know with a straight-forward "Flaps Damaged" message.

Important Flight-Control Keys

You're probably itching to get in the air—and here's your chance. This section contains the most important flight-control keys (that is, the absolute minimum) you need to know before you fly. You start off in the air with both the Practice Flight and the Free-for-All games, but consider starting in Practice Flight if



you're a complete novice. This way you can learn to fly without someone shooting at you.

- Use the = (Equals key) and the - (Minus key) to increase and decrease the throttle.
- If you don't have actual rudder pedals (or a "twist" feature, such as in the Microsoft Sidewinder 3D Pro joystick), press the Z and X keys to position the rudder left and right. If you're flying in realistic physics mode, you must re-center the rudder after using it. Press C to re-center the rudder.
- Use the rudder to maneuver the aircraft while it's still on the ground—such as when you're turning onto the runway—and to keep it straight during takeoff. In addition to the rudder itself, the rudder pedals control the tail wheel of the plane. This causes a slight loss in rudder effectiveness as soon as your tail wheel leaves the ground during takeoff.
- Use a joystick or the arrow keys to climb and bank the plane. Push forward on the joystick or press the Up arrow to pitch the plane's nose downward (to dive). Pull back on the joystick or press the Down arrow to pitch the plane's nose upward (to climb). Push the joystick left or press the Left arrow to bank left. Push the joystick right or press the Right arrow to bank right.

At this point, try to get a feel for how the flight controls move the airplane and how to read the instruments. When you're ready, try taking off.

Takeoff Tutorial

Listed below are instructions for taking off, along with additional notes about some of the subtleties of the maneuver.

1. Open the throttle by pressing + (Plus key). Of course, if you have a separate throttle control, just push that forward. Don't give it too much throttle just yet. You need to make a left turn before you'll be lined up with the runway. Too much throttle now may cause you to go off the runway or hit a ground structure. Nothing makes a Commanding Officer angrier.
2. Press B to release the brakes. Make sure the yellow B indicator goes off. Also, don't be afraid to use the brakes if you've applied too much throttle and think you're going off the runway.

Note: Each of these keyboard controls functions only if the corresponding flight control is turned off in the Peripherals section of the Options screen. For example, the arrow keys won't control the plane if the joystick control is set to On.

except the P-38 are tail dragger (they have a tail wheel instead of a nose wheel tricycle setup), you'll have a hard time seeing the runway. Switching to Full Screen forward view by pressing [(open bracket) helps tremendously.

4. At 100-150KIAS (Knots Indicated Airspeed), press the Down arrow to climb. Note that some aircraft (depending on the Physics Level you're using) take off better than others with flaps. So use them if you need them, but don't forget to retract them once you're off the ground and have gained some airspeed.
5. Retract your landing gear by pressing G. Double check that the G Indicator disappears. If it doesn't, it means your gear hasn't retracted. Extended landing gear can decrease your top speed by more than one half.



This arrow points the direction in which you should take off.

3. Follow the superimposed arrow onto the runway by using Z (left) or X (right). Give it full left rudder (on the pedals if you've got 'em).

Because all the aircraft

Consider these tips while taking off into the wild blue yonder:

- If the runway is being used, planes waiting to take off line up next to you when they enter the arena. You can crash into them if you're not careful, so watch for them.
- Use as much of the runway as you need to build up speed before takeoff.



- After takeoff, don't use the flaps unless you need them. This will help you build up more speed for combat maneuvers.
- Raise your landing gear as soon as your wheels leave the ground. Leaving your gear down reduces your maximum speed by more than half.
- Don't climb at too steep an angle. You don't want to let your airplane get too slow, or you won't be able to maneuver if you're suddenly attacked.

Slow Connections

As with most online gaming, if you have a slow connection, you'll be at a disadvantage competing against players with faster connections. We spoke quite a bit about improving your online connections in the Tips for Improving Zone Connection Performance section in Chapter One. The concepts outlined there apply to Fighter Ace as well, but we can discuss some of the tools Fighter Ace offers to help identify problems.

To find out how fast your current connection to Fighter Ace is, bring up the Data Screen by pressing Alt-T while online and in-flight. Check the Network dials on the left- and right-hand bottom corners of the Data Screen.

The Network Data Loss dial tells you how much data is being lost in transmission between your computer and the Zone server running Fighter Ace. The Network Latency dial tells you how long it takes data to travel between your computer and the game server.

If the dial indicators are in the green zone, you're doing fine and don't need to worry about the quality of your connection. If the dial indicators slip into the yellow or the red area, you're likely to experience some odd visual effects such as warping or stop-and-go action. Needless to say, it will be difficult for you to compete against flyers with low latency under those conditions.

If you've already tried all of the



The Data Screen Network Dials display information about your connection quality.

suggestions listed in the Tips for Improving Zone Connection Performance section in Chapter One, try leaving the game for a while and returning at a time when your network isn't as busy. It isn't the greatest option, but the lack of bandwidth isn't something you can control.

In-Game Communication

There are two different ways to communicate with other players while playing Fighter Ace—by radio and by sending pre-created messages. Aside from the actual key commands used, the main difference between the two is where and how the messages are created. In any case, each type of communiqué can be directed specifically to either everyone, teammates only, or enemies only.

All messages broadcast to you within your reception range—i.e., within five positional grid sectors of you—are displayed in the center of your screen. Messages scroll by pretty quickly when there's a lot of chatter going on, so pay close attention to the radio or you may miss what's being sent. If you do miss something, call up the message Log Screen by pressing the M key. A listing of recent system messages appears on the left side of the screen, and player messages are displayed on the right side. Note that player messages are color-coded—yellow for enemy, green for friendly, and white for messages you've sent.

System message color-coding is white for general messages, green for shots you've landed, light blue for kills you've made, orange for hits you've taken, and pink for when you're shot down.



A list of recent messages can be viewed on the message Log Screen.

Using the Radio

You can type and send exactly what you wish to say via the radio. This can come in handy in situations where



a pre-created message won't do. On the other hand, typing while in the middle of a furball can be hazardous to your airplane, so beware.

To operate the radio:

1. Press the appropriate key command based on the person to whom you wish to communicate. Press Enter on the keyboard (as opposed to the number pad) to send your message to everyone; or, press 8 on the keyboard to send it to Teammates only (this works only in Team Combat); or, press 7 on the keyboard to send it to Enemies only. (In Free-for-All, everyone is the enemy!).
2. When a blinking cursor appears on the screen, type in your message. Note that it can't be more than 60 characters long.
3. Press Enter to send.

Sending Messages

Unlike with the radio feature, you can send only pre-created messages with the message feature. This is great for people who don't type very well or for when you're really busy dealing with bandits. On the downside, unless you've taken the time to configure messages for all possible contingencies, you'll probably need to use the radio at some point.

Pre-configured messages are placed in separate text files based on the person for whom they're intended. To add, delete, or edit pre-configured messages, use Windows Notepad or any text editor. Insert only one complete message or name on each line. If your message is more than 30 characters long, it will be truncated. You're also limited to 127 messages per file, and all blank lines are skipped.

The text files for which you can configure messages are:

TOALL.TXT: Messages to all players.

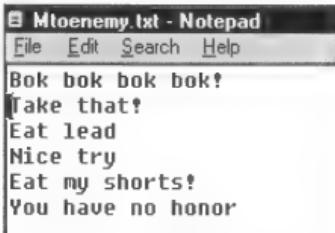
TOENEMY.TXT: Messages to enemies only.

TOFRIEND.TXT: Messages to friendlies only.

QUIET.TXT: The pilots on this list can't send messages back to you.

To send from a list of pre-created messages:

Tip: If your radio message is intended for a specific pilot, precede it with his or her ID (or a recognizable abbreviation). This way the intended recipient will know you're talking to him.



To add, delete, or edit pre-configured messages, use a text editor such as Windows Notepad.

Tip: Don't add too many messages to your message files or you'll have a screen full of text every time you send messages from that file. Not only does this clutter your screen; but it's also difficult to scroll through them to find the message you wish to send. Another tip is to program messages that you use often into your programmable joystick or keymap well-used message keys.

1. Press the appropriate key command based on the person with whom you wish to communicate.
2. Press Alt-Enter on the keyboard (as opposed to the number pad) to send to everyone; or, press Alt+8 on the keyboard to send to friends only (this works only in Team Combat.); or, press Alt-7 on the keyboard to send to enemies only. (In Free-for-All, everyone is the enemy!)
3. A list of messages appears on the left-hand side of the screen. Tab through the list to select the message you wish to send (use Shift-Tab to select the previous message).
4. Press Enter to send the message.

System Messages

Fighter Ace's server occasionally sends system messages. Here are some examples:

XXX GE downed YYY US: A kill has been scored.

XXX GE joining game with GE: A player has joined the arena.

XXX leaving game: A player is leaving the arena.

XXX crashed: A player has crashed.

XXX GE has collided with YYY US: Two players have collided.



XXX and YYY represent pilot IDs. The abbreviation US stands for United States, GE stands for Germany, BR for Britain, and SU for the Soviet Union.

Watch Replay

The Watch Replay selection from the Main Menu allows you to view films made by yourself or other pilots (if they send them to you after saving them). In the real world, military pilots in World War II used what's known as "gun camera films" to verify their kills. Fighter Ace has a similar feature that can not only help you impress your friends, but that's also a valuable training feature that can help you see what you did right or figure out where you went wrong.

To Record a film:

1. Press R while in flight to begin recording. The letters "Rec" appear in the upper right-hand corner of the screen to indicate that you're recording. If you stop recording and restart again, only the last recording can be saved.
2. When you leave the game, you're prompted to name the file you just recorded. It will be saved on your hard drive in Fighter Ace's /FILMS folder, which is created the first time you save a replay. While replay names can be longer, only the first 37 characters are displayed on the Watch Replay list. Likewise, replay Descriptions can be longer, but only the first 28 characters are shown on the Watch Replay list.



Watching Replay films can be a valuable training tool.

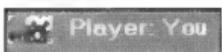


Rec appears when you're recording a film.

Note: The number of films you can save and the length of each ultimately depends on how much free hard-disk space you have on the drive where Fighter Ace is installed.



Although you can type in longer names and descriptions, only the first 37 and 28 characters, respectively for Watch Replay and Descriptions, will be displayed.



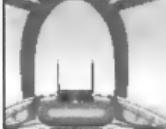
This camera icon appears in the upper left-hand corner of the screen to indicate that you're watching a replay film.



When you want to change the replay film view, press Backspace and this hand icon appears, indicating the mode change.

To Playback a film:

1. Select a film to play by highlighting it, and then clicking the Play button.
2. Once in the film, you'll see a video camera in the upper left. This indicates that you're watching taped footage instead of live. A blinking pause icon also appears in the upper right.
3. Press Backspace to activate Change View, and the camera changes into a hand. You now have access to a variety of useful commands that enable you to look at the action from various angles and points of view. For example, you can run the film backwards or even freeze your plane in place while the action continues around it.
4. To begin the film, simply press the Right arrow key. To view the film in reverse or to advance the film one frame at a time, check the replay command Help Window by pressing F1.
5. Press the Esc key to exit the film and return to the Main Menu.



These are the playback icons and descriptions for replay options.

Tip: Press **Ctrl-Z** to capture a screenshot. (They're saved in .bmp format so you can use them as Windows desktop wallpaper if you like. See your Windows manual for details.) Screen captures are saved in Fighter Ace's /SCRSHOT folder, which is created the first time you capture a screen.



Press **F1** to see the replay command Help Window.

Scoring

The object of Fighter Ace is to shoot down opposing planes. Depending on the game arena in which you're playing, the enemy ranges from pilots from an opposing country to every other airplane in the sky. In any case, the goal is always to increase your kill total and become a Fighter Ace. "Ace" is awarded to pilots who make five consecutive kills in a session with no deaths or crashes. If you leave the arena for any reason (even to change airplanes) you'll have to start over in your quest for Ace status.

Viewing Scores

You can view your score while in flight. Let's talk about the in-flight score displays. Your personal score for the current session appears in the upper right-hand corner of the screen while you fly online. The meaning of the terms

**Crashes: 3 Kills: 11
Deaths: 2 To Cpt: 3**

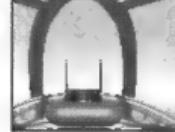
Your personal in-flight score appears in the upper right-hand corner of the flight screen.



The Team Window displays current team totals.

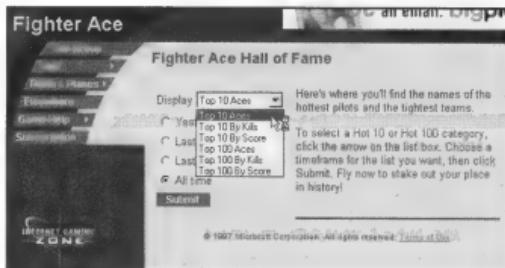
current totals when online, press Alt+T to access the Data Screen. There you'll find statistics for:

- Team Members: Number of friendly players currently playing.
- Enemy Kills: Number of enemy planes shot down.
- Times Downed: Number of downs caused by enemy forces.
- Friendly Kills: Number of kills by friendly forces.
- Team Crashes: Number of friendly unforced crashes.
- Team Ratio: Number of kills minus 50 percent of downs and 25 percent of unforced crashes.



Fighter Ace Hall of Fame

The online Hall Of Fame (HOF) is hosted by the Zone and is available for viewing by clicking the Pilots & Planes button on the Fighter Ace game room menu, and then selecting Hall Of Fame. Based on your selection, you can view pilot rankings based on Aces, Kills, and Score for four time periods: Yesterday, Last Week, Last Month, and Of All Time.



View pilot rankings based on Aces, Kills, and Score in the Fighter Ace Hall Of Fame...if you've got the right stuff your name will be posted here.

Assigning Kills

Each time a player is shot down, the kill is credited to another player. Success in Fighter Ace is based on the number of kills per player.

Kills are scored as follows:

- Crashing a plane without damage is considered an un-forced crash and isn't credited as a kill to any pilot. The player flying simply has an unforced crash recorded in his or her record.
- The last player to damage a plane (not just fire on it) receives credit for the kill if the plane is destroyed or crashes.
- Damage cannot be done to a plane that is already disabled (has lost power or flight control) and is heading for the ground. The credit goes to the pilot who originally disabled the plane.
- Mid-air collisions are counted as kills even if both planes are destroyed and both pilots are killed. Both players get one kill and one down.
- Collisions with friendlies results in a reduction of 1.5 to each ratio.
- Exiting the game with more than 80 percent damage counts as a death for the player exiting and as a kill for the last pilot to shoot the plane.

Scoring

Event	Kills	Deaths	Crashes	Score(Ratio)
Kill enemy	+1			+1
Die from enemy fire		+1		-5
Kill friend				-5
Die from friendly fire				0
Die from enemy anti-aircraft fire			+1	-1
Collision with enemy	+1		+1	0
Collision with friend			+1	-1.5
Crash			+1	-1

Friendly Fire

Players who shoot down friendly aircraft don't get credit for a kill, and the victim doesn't receive a down scored against him. Friendly kills reduce the attacker's ratio by .5. This .5 ratio reduction applies to mid-air collisions with friendlies as well.

Moving Up the Ranks

Ranks are awarded on the basis of the number of kills compared to the number of downs and unforced crashes. Rank determination is as follows:

Cadet: Starting rank.

Sergeant: Players must have one kill.

1st Lieutenant: Number of kills minus 50 percent the number of downs, minus 25 percent the number of unforced crashes greater than 5.

2nd Lieutenant: Number of kills minus 50 percent the number of downs, minus 25 percent the number of unforced crashes greater than 15.

Captain: Number of kills minus 50 percent the number of downs, minus 25 percent the number of unforced crashes greater than 30.

Major: Number of kills minus 50 percent the number of downs, minus 25 percent the number of unforced crashes greater than 60.

Colonel: Number of kills minus 50 percent the number of downs, minus 25 percent the number of unforced crashes greater than 100.



General: Number of kills minus 50 percent the number of downs, minus 25 percent the number of unforced crashes greater than 200.

Major General: Number of kills minus 50 percent the number of downs, minus 25 percent the number of unforced crashes greater than 300.

Subtracting 50 percent of downs and 25 percent of unforced crashes from total kills means a player's rank increases slowly if the number of kills and downs is equal. For rapid progress, a player must have significantly more kills than downs. Be aware that poor combat performance can result in a demotion.

Becoming an Ace

Just as in that old joke—"How do I get to Carnegie Hall?" "Practice!"—the answer to becoming a Fighter Ace is with work. But more specifically, Aces are given to pilots who make five consecutive kills with no deaths or crashes. (And, as noted previously, leaving the arena for any reason, including changing airplanes, starts you over.) Ace status is indicated by an asterisk in the pilot's name tag. Friendly fire deaths don't affect your progress toward Ace-dom. Now that we've covered what it takes to increase your score, in the next chapters we'll talk about how to go about reaching your mission goals in Fighter Ace!



Fighter Ace's "Ace" status is indicated by an asterisk in the pilot's name tag and one by the player's personal score display.

Tip: *As long as you have enabled the name tags and rank tags option, you can view your personal rank or Ace status by pressing F7 for an external view of your airplane.*



BASIC TACTICS AND STRATEGIES

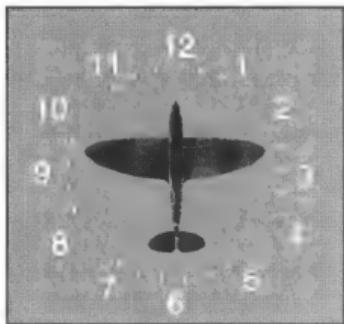
Air combat is an extremely complex subject. Since it would be impossible to cover every aspect of air combat in a single chapter, we'll take a look at the five stages that embody an air-combat engagement. Instead of loading you up with flight maneuvers from the beginning, we'll make it easier for you to comprehend what's really happening by presenting those maneuvers within a context. This is where the five stages of air combat come into play. The combination of knowing a maneuver—and knowing where it can appropriately be used within a battle—will empower you with the knowledge that will transform you from the hunted to the hunter.

Air Combat Conventions

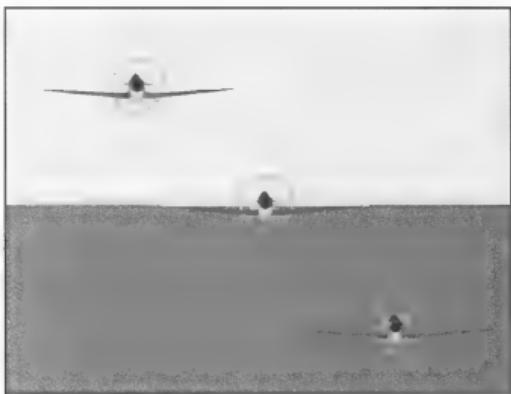
Before we can begin air-combat discussions, it's important that we establish the basic air combat conventions we'll be using. We do this now so there's no mistake about what we're talking about and because these essentials really can't be learned while you're in the air.

Spatial Relations

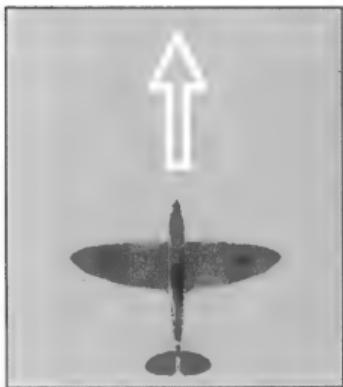
When flying in air combat, you must constantly be considering the spatial relationship between yourself and enemy aircraft. Military convention designates relative positions of other aircraft as if you were sitting in the middle of a giant imaginary clock. 12 o'clock would be directly ahead of you, 6 o'clock directly behind, and 3 o'clock and 9 o'clock to the right and left,



Military convention designates relative positions of other aircraft with numbers on a clock—as if you were sitting in the middle of a giant imaginary clock.



In three-dimensional space, relative altitudes can be estimated by their relation to the horizon.



The nose of a fighter is its most dangerous part because its machine guns (and cannon if so equipped) are aimed forward.

respectively. Unless we specify otherwise, these clock references will mean spatial positioning relative to *you* while you're sitting in the cockpit.

Air combat takes place in three-dimensional space. This makes the relative altitude of other aircraft extremely important. While the terms high, low, and level are pretty straightforward, deciphering the relative altitude of an airplane isn't always so obvious. The rules of thumb are: if an aircraft appears *above* the horizon, it's *above you*; if it's *below* the horizon, it's *below you*; if an aircraft is *on* the horizon, its altitude is comparable to yours (sometimes referred to as *co-alt*).

Heads and Tails

At their most basic, combat fighters are merely flying weapon platforms. They're designed to maneuver into position so they can dispatch their weapons with maximum lethal effect. Because the only air-to-air weapons modeled in Fighter Ace are stationary guns and cannons, this makes the nose of a fighter the most dangerous end of the aircraft. All other areas on a fighter are vulnerable, but as we'll see, the most vulnerable part is the tail.

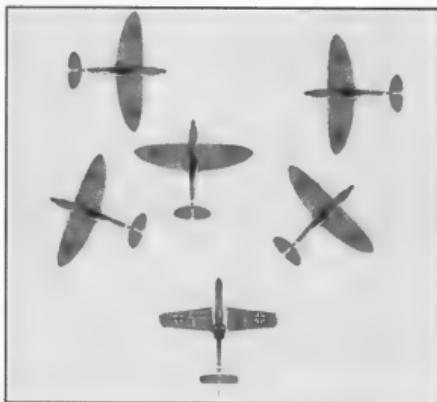
There are four possible positional situations when encountering an enemy fighter. From most



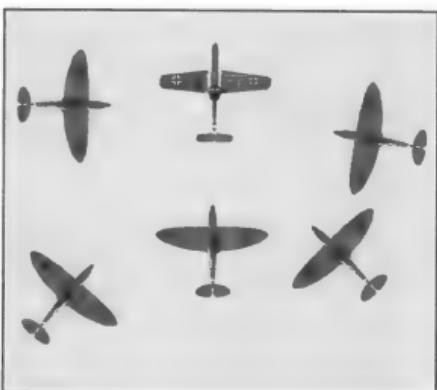
desirable to least desirable we have Head to Tail (H2T), Tail to Tail (T2T), Head to Head (H2H), and Tail to Head (T2H). The naming convention is to indicate *your* airplane *first* in relation to the other airplane. For example, in an H2T situation, the head, or nose, of your airplane is facing any part of the other airplane other than its nose. Conversely, a T2H situation places the other aircraft facing your tail. While some pilots consider H2H more desirable than T2T, the hierarchy is based on danger to you and not your offensive capability.

Next we'll categorize each of these situations as offensive, defensive, or both. Some situations can be offensive and defensive at the same time. While some tacticians categorize such situations as being neutral, they're actually are both offensive *and* defensive. Anytime a bandit has its gun pointed at you, you're defensive. Conversely, anytime your nose is pointed at your opponent, you're offensive (and in air combat, that's good!). Therefore, in the case of a H2H relationship, you are both offensive and defensive.

The T2T orientation is a neutral situation. Of course, all of these situations are based on the assumption that both parties have ammunition and are within effective- weapons range. That's because if



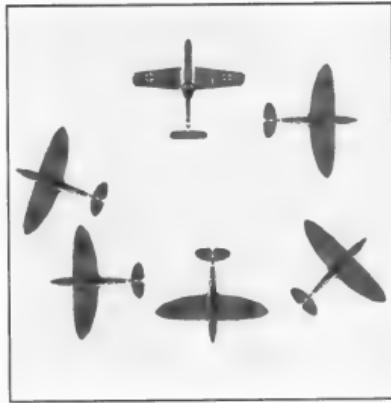
The H2T situation is most desirable because you can shoot at your enemy and he or she can't shoot at you.



The T2H position is the least desirable because your enemy can shoot at you but you can't return fire.



An H2H situation is both offensive and defensive because you and the bandit can shoot at each other.



The T2T situation is a neutral situation because neither of you can shoot at the other. This makes it the second most desirable position.



The three pursuit courses: lead, pure, and lag.

you're both outside of weapons range, offensive or defensive categorization doesn't apply.

Trivial Pursuits

When an offensive fighter converges on a bandit, the flight path or pursuit courses that can be taken by that aircraft are lead pursuit, pure pursuit, or lag pursuit. When the nose of your aircraft points in front of the bandit, you're flying a lead pursuit course. When the nose of your aircraft points directly at the bandit, you're flying a pure pursuit course. When the nose of your aircraft points behind the bandit, you're flying a lag pursuit course.



Five Stages of Combat

As mentioned earlier, air combat can be broken down into five basic stages: Detection, Closing, Attack, Maneuver, and Disengage. We'll look at each one separately, but there are a couple of things to keep in mind as we discuss these concepts. When it comes to air combat, what we discuss here certainly isn't the only way to get things done. Although one could never cover every single possibility or variation of air combat, rest assured that what you read here is tried and true, and should serve you well.

To keep things simple, we're going to discuss "one vs. one" tactics first. We'll cover multiple-fighter and Teammate Tactics in the next chapter.

Air combat is a fluid event—one stage simply flows into the next. Some of the tactics we discuss will spread beyond the particular stage in which they were first introduced. The most important thing you should get from this chapter is an overall understanding of what goes on. Don't spend too much time trying to memorize which stage is which. When you're in the middle of a furball, you won't have the time to think in those terms. These stages merely provide a frame of reference to help you understand how things are done and to better see how everything fits into the overall picture of an air battle.

Detection Stage

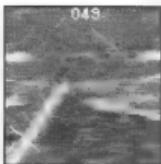
If you can see the enemy before it sees you, not only can this sometimes gain you the advantage of surprise, but at the very least, it also gives you some control over taking the fight where and when you want it. The Detection stage contains three basic objectives—what we'll call the three Ws: who, what, and where.

No matter how you look at it, finding the enemy is very important because if you can't find 'em, you can't kill 'em. Fighter Ace gives you three ways to detect the enemy—with radar, on the map, and through the viewing systems.

Using Radar

Radar makes a fighter pilot's life easier because it can provide answers to most of the Ws for you. You're able to see the camp affiliation and the position of any aircraft within radar range, usually before you're in trouble or within visual range. You can also approximate the heading of other aircraft by their relative rate of separation or closure compared to your own flight path. The only things

Note: Radar won't work when you fly in the Advanced skill level games.



Radar allows you to see the camp affiliation and position of any aircraft before you're actually in trouble or within visual range.

Tip: You can extend your radar viewing range by flying a zigzag pattern. That's because the radar screen is square in shape. This naturally makes the distance (which relates to radar range) to the corners of the screen slightly longer than the distance directly to the sides. By flying a diagonal path relative to the radar target, you'll be able to paint it earlier than if you flew directly toward it.

one of the four that the particular camp deploys, knowing exactly which aircraft is being flown by the bandit will dictate the tactics you'll prefer to use against it.

Press Alt-M while in the Full Screen Forward view (F3) to turn your radar on. There's no disadvantage in keeping your radar activated, so you can keep it on at all times. Use it to watch for approaching enemies, and to avoid accidentally chasing teammates. Your plane is the white dot at the center of the radar display. Other planes appear as colored dots that are color-coded by camp. There are four camps: American, British, German, and Soviet. Each has its own unique color. American = Yellow; British = Green; Soviet = Red; and German = Purple. Neutral (the color surrounding airfields in Free-for-All games) is Blue.

Here are some additional pointers for more effective use of radar:

- The radar screen gives you a 360-degree view (you're represented by the white dot at the center).
- The top of the radar screen coincides with the front of your airplane.
- The digital readout at the top of the radar screen is your current heading.
- Aircraft directly above you or directly below you might not be readily apparent because their dot will superimpose over yours.
- Airfields show up with camp color-coded outlines. These make it easier to line up for landing or for avoiding enemy anti-aircraft fire.

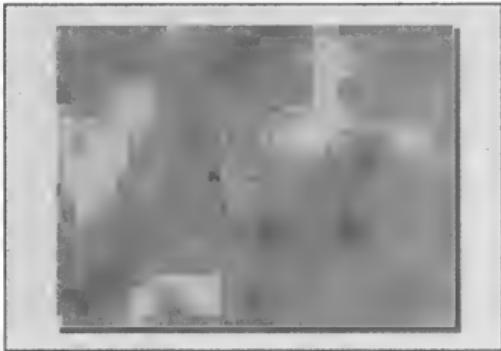
Using the Map

Press the M key to look at the map. As far as the information it provides, the map works like radar because it provides camp and position information. While

the map has a larger field of view—which makes it more useful for long range detection than radar—it doesn't rotate with your flight path heading changes. Instead, your heading and velocity are represented by a white line extending from your airplane. This line points in the direction of your heading and the length of the line represents your forward velocity. The longer the line, the faster you're moving. Conversely, the shorter the line, the slower you're moving. Some other basic map tips are:

- You are represented by the X in the center of the map. The color of the X indicates your camp affiliation.
- The top of the map is always North—it doesn't rotate with you.
- The top of the map displays a positional grid that is 64 x 64. This is helpful in keeping track of where you are.
- To update your map positioning, press Space.
- Use the Increase and Decrease Map Detail keys (Ctrl gray + [plus]

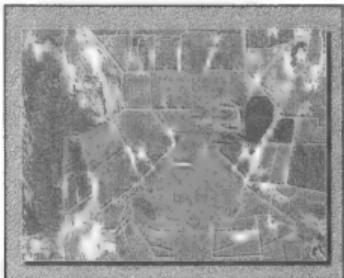
Tip: If you forget which camp you're currently flying for, the color of your tracers will reflect your camp affiliation.



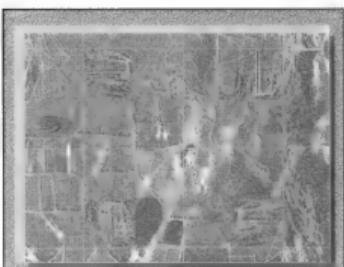
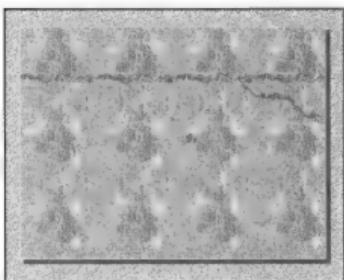
The map provides the same information that radar does, but has a larger field of view.



The Map displays a positional grid that is 64 x 64. This is helpful in keeping track of where you are.



Use the Increase (above) and Decrease (below) Map Detail keys to make it easier to see nearby aircraft.



and Ctrl gray - [minus] respectively) to reduce confusion and clutter if there are too many aircraft in the area to track. If you need to make a choice, you only need to worry about the aircraft closest to you because they are the most dangerous to you. You can deal with the others later.

It's best to use the map for long-range detection duty and rely on radar for more immediate tasks. Pressing Alt-F3 will toggle the Highlight Airfield feature. This places colored rectangles (displayed in the camp colors) around the airfields. (In addition to the map view, these rectangles are also visible in the flight views.) This makes it easier to identify airfields and determine which airfield is yours and which airfield belongs to the enemy.

Airfield locations remain constant. The U.S. airfield is located in the southwest and it has a single North-South runway. The British airfield is located in the northeast and also has a single North-South runway. The Soviet airfield is located in the northwest and has a single East-West runway. The German airfield is located in the southeast and also has a single East-West runway. These four airfields are each referred to as an aircraft cluster.

There are four airfield clusters per arena. They are located at positional grids E/F-5/6, E/F-17/18, Q/R-9/10 and Q/R-21/22. If a room status indicator shows pilots around, and you don't find them when you enter the arena, it's likely they're fighting above another airfield cluster.

Highlighted airfields (left) can be seen on the map view as well as in the flight views. The U.S. camp is in the SW, the British camp is in the NE, the Soviet in the NW, and German in the SE.



Using Views

Without the benefits of radar in the Advanced skill level games, you're forced to discover the first three Ws yourself. Even with radar, altitude and the particular aircraft model can be determined only by visual sighting. The most basic and (usually) effective way to avoid becoming a statistic on someone else's permanent score is vigilantly to scan all areas of the sky. This isn't difficult to do if you develop a *detection scan pattern*. A good detection scan can also help you avoid missing or skipping some areas of the sky. As a side benefit, this skill will increase your situational awareness abilities. Before we get to that, we should first discuss Fighter Ace's combat viewing systems—Fixed, 3D, and Padlocked 3D.

Fixed Views

Fixed views are views that are not user adjustable—what you see is what you get. Fighter Ace comes with two front-fixed views, two side-fixed views, one up-fixed view, and one back-fixed view.

Fixed views come in two versions—Cockpit and Full. Press F2 to see the Cockpit View and F3 for the Full View. These two views look straight out the front of the airplane. Full View gives you an unobstructed view (without the instrument panel and canopy frame). Remember that flight-instrument data appears at the top of the screen. The cross hairs at the center of the screen are there to help you aim. Cockpit

Tip: *The terrain textures continually repeat as you fly along but landmarks don't. This means that, just like in the real world, it's possible to fly so far from the action that you might not be able to find your way back. If this happens press Escape to leave the arena. When you reenter the game you'll find yourself back at the party.*



The Cockpit View includes the interior of the cockpit and instruments.



Full View provides an unobstructed view of the airspace. Instrument data appears at the top of the screen, and the cross hairs at the center help your aim.

cockpit interior view depends on whether you're in 3D Cockpit (see the next section) or Full Screen mode. Many pilots find the fixed views easiest to use because you basically press a single key to get the view you want. Furthermore, Full views allow you to see areas around the airplane that are normally obstructed by the aircraft itself—for example, under the nose and below the wings. The only drawback of fixed views is viewing corners (2, 4, 8, and 10 o'clock positions). Fixed views don't overlap, so seeing in these areas requires flight path maneuvering.

3D Cockpit Views

Press Alt-F4 for the versatile 3D Cockpit View. This view is similar to the Cockpit View but it allows you to pan around and look out all sides of the airplane. You scroll your view around by using the mouse or the number keys (not on the keypad): press the 1 and 2 keys to move left and right and the 5 and 6 keys to move up and down. While this view resolves the corner-viewing problems of the fixed views, reaching for the mouse and accomplishing the multiple key presses required for scrolling can be awkward.

View shows the interior of the cockpit and instruments, and it provides maximum information about the aircraft and its position. While Fighter Ace is more realistic in Cockpit View, it's easier to see the action in Full View, and Full View requires less computing power to render. So if your computer hardware is struggling to run Fighter Ace, using Full View can help.

The Side, Up, and Back views (press the ; key for left view, ' for right, [for up, and / for back) are also fixed views, but the aircraft



One variation of the 3D Cockpit View is the Padlocked 3D Cockpit View. Padlock roughly translates into "locked on enemy view." Pressing F4 brings up this view, which naturally is available only when there are enemy airplanes in the vicinity. This view allows you to find out where the enemy is. It automatically pans the cockpit around and locks the view on your nearest enemy. The Cockpit View will move around as your enemy does.

Pressing the Period key (.) or the Comma key (,) will allow you to cycle forward and backward through the enemy planes in your Padlock View. (Also remember that every plane is the enemy if you're in Free-for-All mode.)

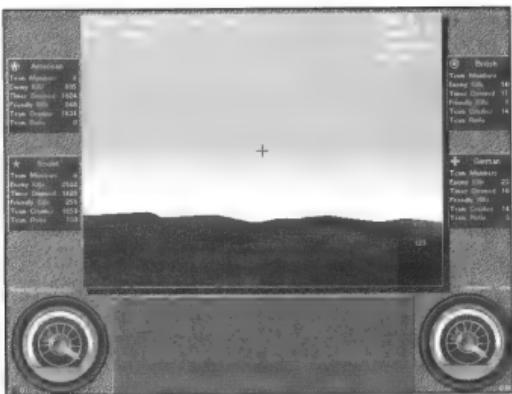
Normally Padlocked 3D Cockpit View will automatically switch to the closest enemy. Pressing E overrides this switching. The Padlocked 3D view sounds like a great idea—and it is in theory—but in practice it can be very disorienting. This is because once you lose reference to where you're



3D Cockpit view is the most realistic because it allows you to pan around and look out all sides of the airplane. But it's awkward to use.



When the 3D Cockpit is Padlocked, it pans the cockpit around and locks the view on your nearest enemy. The cockpit view will then scroll around as your enemy does.



The Team Window, or Data Screen, displays the number of pilots from each camp in your arena, the team scores, and the Network latency. But the airspace window is reduced in size and usefulness.

Tip: *A combination of all of the view types is required to keep your eye on the enemy effectively. Map your favorite views to your joystick for quick access.*

turn it on by pressing Alt-T only when you want to access the information that's on it or check your network performance.

Detection Scan

The concept of the *detection scan pattern* is similar to that of the instrument scan pattern used for Instrument Flight Rules (IFR) flight. As with all scan patterns, there's no ideal detection scan pattern for all pilots or all situations. Most pilots need to develop their own patterns to maximize their efficiency based on their habits. We'll look at one example of a detection scan main pattern, but keep in mind that you'll probably have to develop your own based on what is comfortable for you.

looking (as when you see nothing but blue sky), it can become extremely difficult to figure out which way you need to move your aircraft's controls.

Data Screen

Although the Data Screen (also known as the Team Window) includes one of the previous views we've discussed, it's not really a *view*. But it does offer valuable tactical information: the Data Screen displays the number of pilots from each camp in your arena, the team scores, and the Network latency. All of this

information is displayed in the frame surrounding the airspace window. This makes the area available for the flight window relatively small, so you'll probably want to keep the Data Screen turned off most of the time. Therefore,



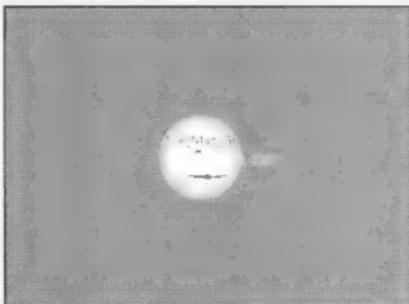
Start the detection scan pattern by scanning the Full Forward View, and then move to the radar screen. (If radar is disabled, scan the map instead.) Then scan the rear view, and scan back to the forward view. Next, scan over to the right and then back to the front. Scan left next, back to the front, and finally up, back to the front, and then start over.

Intertwined among these main pattern cycles should be what we call scan sub-patterns. Scan sub-patterns include banking the airplane to scan under the wings and nose; a scan of the map for long range detection; and a quick flip to Padlock mode to see if anything got by the other scans.

The main idea behind a scan pattern is to keep your eyes moving continuously to cover all areas

around you. The most common mistake is fixating on the forward view or the radar screen. Another common mistake is omitting or skipping some areas. Whatever pattern you develop, know that almost everyone bases his or her detection scan around the forward view because the first order of business is to keep your airplane flying. At this point, what you're looking for are dots in the sky or on the ground, which depict aircraft (or their shadows) at long range. As you get closer, their *Tags* will appear on your screen if you have them enabled.

Tip: Always include the sun in your scan. It's a popular and very effective attack position. Any airplanes flying within the center of the sun or within the haze surrounding it will become appropriately shrouded from view. Tags may remain visible depending on the view angle, but they will become very difficult to see.



The sun can be used for tactical purposes.

Tags

Distance, Name, Rank, and Camp Tags can be used to identify other planes and make them more visible when they are at a distance. Here are some tips on how to use tags:

Press **Ctrl-F5** to tag all planes with the distance between you and them displayed in camp colors.

Press **Alt-F5** to tag all planes with their individual IDs, color-coded by camp. If you keep getting shot down by the same player, you'll be able to pick him out of the crowd for payback.

The Forward Slip

One maneuver that is effective for detection purposes when you're flying at high altitudes is called a forward slip. This maneuver allows you to bank your wings without changing your heading. While a forward slip is normally used for losing altitude, a less aggressive slip (using less control input) doesn't cause an appreciable loss in altitude. Pilots at high altitude normally accept either changes in heading or losses in altitude associated with steep banks. Some pilots temporarily fly inverted and use an Up view to see what was previously below them. This is usually fine but aircraft with slow roll rates can suffer great E (Energy) losses with such a maneuver. These airplanes will benefit the most from the forward slip.



The forward slip can help you see what's below you without your plane losing a lot of altitude.

Basically the forward slip is a bank, using ailerons with enough opposite rudder added to keep the airplane from turning. You'll usually need to apply a bit of up elevator to keep the aircraft from descending as well. It may take a little getting used to, but with some practice, the forward slip will become second nature.

While the forward slip is handy for visual detection duty, note that it's usually used for losing altitude without gaining airspeed. That's something that can be especially useful for those fast landings when you're damaged and trying to avoid a bandit.



Press **Ctrl-Shift-F5** to view player Rank. This can help you decipher who the more skilled players are.

Press **Ctrl-Alt-F5** to add Camp Tags. Unless you can't distinguish the color-coding used to identify camp affiliations, Camp Tags are useless—they take up screen space without providing additional information.



Distance, Callsign, Rank, and Camp Tags can be used to identify other planes and make them easier to see.

The Final W: What?

The only question left is what the bandit is doing. Because of the nature of Fighter Ace, there are only a few things a bandit could be doing (unless he's just plain old lost). Based on a bandit's appearance, location, heading, and altitude you can pretty well guess what he's up to. Here are a few of the most common situations.

If a bandit is:

- Smoking and at low altitude, know that it's damaged and trying to get away.
- At low altitude near his own camp's runway and lined up with it, the bandit is most likely either attempting a takeoff or landing—if no enemy aircraft are in his path. His direction of travel will provide the best indication.
- At low altitude near his or her own runway—with enemy aircraft nearby—the bandit is probably using the home airfield's *Ack* (anti-aircraft fire) for protection. (We'll discuss how this works a little later.)

Tip: *The two most important tags are the Distance Tag and the Callsign Tag—and in that order. At the very least, consider using these two. Regardless of which tag combination you decide to use, the tagged airplane—when viewed from long distances—is located slightly to the left of the tag. Tags will not appear if the aircraft in question is not presently in your current view. This means that tags will show up even if they're hidden behind your airplane's artwork or if they're outside the borders of your current view. The trick is to move your airplane or view so the Tags appear. Use the forward slip or invert if you need to.*

- At low altitude near an opposing camp's runway, the bandit is trying to pick off enemy pilots who are taking off and landing from that airfield.
- At medium altitude and outside the central area of the arena, he's likely just out there trying to gain altitude.
- Alone at medium or low altitude within the central area of the arena: he's likely low on energy from just coming out on top of a dogfight.
- At high altitude over the central area or above a furball, he's getting ready to attack (selecting a target).

If the axiom "You can't shoot 'em if you can't see 'em" is true, then the opposite would be true as well: "They can't shoot you if they can't see you." This is the basis of anti-detection (commonly referred to as *stealth*) today. As we've already discussed, we're basically dealing with the same things: radar and visual—only now we're on the other side. While being able to see the tags of your enemy without them seeing yours would be nice, the problem is that unless you have working radar and they don't (an impossibility in *Fighter Ace*), you'll be spotted as soon as you spot them. As slim as it may seem, you're only hope of not being detected is to position yourself directly above or directly below a bandit and hope that his detection skills are not up to par.

Finally, your current condition determines the value of the *who* objective. If you're damaged or out of ammo, this can make a big difference as to whether you stay on course or run. If you're neither damaged nor low on anything, it doesn't matter—you're going after them!

Closing Stage

In the world of air combat, the Closing stage doesn't indicate the end of the battle. In fact, this is really where the battle begins—used in this way, the term "Closing" means getting closer. This stage comes between the Detection and Attack stages. The transition from Closing to Attack is determined by weapons range. As you'd imagine, the Closing stage is very important because if you make a bad decision at the beginning of the battle, it can devastate your chances—and your ability—to win the engagement.

Regardless of whether you successfully identified the second or third of the three Ws (where, what, and who) during the Detection Stage, as the pilot in command of your airplane, you now have to make an assessment of your present situation and mission goals. Even though situation goals and mission



goals are separate criteria, both must be considered in order to make a sound Closing decision. This is why we'll cover each individually.

Situation Relations

Okay, Closing takes place outside weapons range. If you're already offensive or defensive, you've jumped to the Attack or Maneuver stages, so we need to back up. When placed in a Closing situation, you must decide two things: *if* and *how*. *If*, of course, means whether you'll proceed with Closing (which will lead to the Attack). *How* means how you're going to close (which is dictated by the type of attack you're going to make). Let's discuss the big *if* first.

Your decision for proceeding to the Closing stage can be based on your current condition. If you're low on things (ammo, fuel, energy, or airplane parts), you may want to make a break for home (or simply press the Escape key if you've sustained less than 80 percent damage), in which case you'd jump directly to the Disengage stage.

The first thing to consider when flying propeller-powered fighters is the E-to-danger ratio. "E" is energy and danger is proximity, quantity, quality, and the relative E state of the enemy. The E-to-danger ratio will dictate what you can do and how you'll be able to go about doing it. The more elements you have in your favor, the more likely you'll emerge victorious. Basically this means your current situation is tied directly to your enemy's current situation.

If it's just you and your lone teammate against a whole enemy camp, you may decide that attacking now would be a greater challenge than your skills and aircraft could sustain. The same may be true if the enemy has an enormous E advantage over you. While you'll probably be ridiculed for running from a battle, it really all comes down to what's important to you and what you want to get out of your Fighter Ace experience. Some pilots fly strictly to increase their kill ratio or to climb in rank. Others fly just because they enjoy the thrill of battle; couldn't care less about points or getting shot down. The choice is yours. Let's continue this discussion on the assumption that you're looking to increase your kill ratio.

Numerical Disadvantages

If you begin a fight outnumbered, you'll begin at a disadvantage. Given equal planes and equal E states, any side with superior numbers has an inherent advantage. Of course this isn't to say one couldn't overcome the odds with

Tip: *Watching for enemy planes is especially critical when fighting close to enemy airfields. This is because the enemy has less distance to cover to enter the fight than your teammates have to cover to reach you.*

things can change very quickly. Keep an eye on your map and radar. It's more likely than not that other planes (including enemy planes) will be busting up your shindig shortly.

Mission Goals

While the first incarnation of Fighter Ace doesn't officially offer or assign any *traditional* missions, that doesn't mean players just fly around the arenas aimlessly. As mentioned earlier, players create goals of their own that tend to affect their decisions just as conventional missions would. These "mission goals" of sorts will also dictate whether or not you'll even want to proceed to the Closing stage.

For example, if your personal objective is to protect your camp's airfield from bandits vulching your teammates (picking off helpless victims) while they are taking off and landing, you may choose to take care of business instead of nursing your busted flaps back to base. This may not be the wisest of decisions, but it illustrates how your goals can affect your closing decisions.

And Now...How

This finally brings us to the *How* mentioned previously in the "Situation Relations" section. Your current position in relation to your enemy will dictate your Closing strategy. An acronym that says it all is PASSS: Position, Altitude, Speed, Surprise, and Sun. The way many pilots remember PASSS is by thinking of air combat engagement as starting with a "first PASSS."

Individually, each element yields its own advantage. So the more of these elements you can gain over your opponent, the greater your total advantage. For *Position* against fighters, you want to gain a position in the order of desirability as we discussed earlier: H2T, T2T, H2H, and T2H. *Altitude* dictates the terms of the battle with prop-based fighters. You'll understand why by the time you reach the end of this chapter. *Speed* and *Surprise* (the first and second

tactics and skill—two ace pilots can defeat three average pilots *most* of the time. But when the odds reach five against two, average pilots have a much better chance of prevailing regardless of the skill level of the other two pilots.

Keep in mind that even when you enter a fight with a numerical advantage,



S in PASSS) go hand in hand. Unless you can surprise your enemy, he or she will attempt to maneuver so that you'll gain as few advantages as possible. Additionally, speed offers another advantage as well—a fast-moving target is harder to hit.

Altitude and speed can be a good thing, but there's such a thing as *too* much of a good thing because altitude and speed can also eliminate your advantage. In this light, don't sacrifice too much of one for the other. Moderation best describes what you're after. It's generally better to have a little of each than to be really high and very slow, or very low and very fast. There are exceptions to this rule of thumb, but moderation is safe because it doesn't present any inherent disadvantages.

The *Sun* (the last S) can help you gain the element of surprise. It's pretty difficult to do this, so don't put too much effort into trying to achieve it, but use the sun to your advantage, placing your shadow on the enemy below you. Take advantage if you happen to be in a position where you're able to use the sun..

Here are a couple of final closing tips (no pun intended) that have served many Fighter Ace vets well. Before closing on the enemy, *make note of the bearing of important landmarks*. In particular, note where your camp is located in relation to where your fight will take place. From here on in, things get pretty busy so you'll find it's better to get your bearings straight now, while you're not

Being Aggressive

In all traditional fighter missions, if you can fight, you fight—there's no question about it. (Besides, in Fighter Ace running away isn't much fun.) This naturally leads to being aggressive, and the old cliche "The best defense is a good offense" applies to air combat as well. What's meant by being aggressive is to take the initiative. By doing so, you can force your opponent to take a defensive posture. This puts your opponent in a bad position and, subsequently, you in a good position because an opponent on the defensive can't easily shoot at you.

On the other hand, you should always keep in mind that being aggressive doesn't mean being suicidal. While you will see suicidal players in your Fighter Ace sorties, they can sometimes work in your favor. Every second that a bandit overstays their welcome without killing you decreases his or her chances of survival—which increases your chances for a kill. After all, it's not a matter of if any individual pilot gets shot down, it's a matter of when.

Tip: *A basic fighter energy conversion equation is altitude can be traded for speed, and speed can be exchanged for altitude. Still, always be aware of your aircraft's performance envelope—more on capabilities in the next chapter.*

being fired upon. It'll save you from having to waste time and energy during battle just to figure out where to find help or safety.

Fight your own fight. This means you must have the courage to avoid fights that aren't on your terms. Don't be suckered into a battle you can't win. While it may not seem courageous to run away from a fight, there are no medals or rank advancement for being shot down. There's no dishonor in surviving even if it means avoiding some or all of the battles put in your path.

Attack Stage

The Attack stage follows the Closing stage. What separates the Attack stage from the Closing stage is your proximity to the bandit. When you've reached weapons range and have ammo, you've entered the Attack stage. Depending on which side of the gun you're on, this is where the bullets fly—or where you start sweating bullets. There are three important parts to the Attack stage:

- Tactical considerations
- Methods
- Technique

Before we look at these stage subdivisions, let's consider the aspects that they all have in common. The most common attack characteristic in Fighter Ace is *marksmanship*.

Marksman

As we mentioned earlier in the book, at their most basic, fighter aircraft are merely flying gun platforms. To learn to make gun kills is really about learning to fly. Among other things, your job as a fighter pilot is to fly your aircraft to a favorable position so you can fire your weapons at your target. Well, there are favorable positions and then there are even *more* favorable positions. Exactly what makes for a favorable position depends on three things: what you're shooting (your weapon), what you're shooting from (your aircraft and how it's being flown), and who you're shooting at (your target). These criteria are the backbone of good marksmanship. Let's discuss some concepts that will help you increase your hit ratio (bullets that hit, compared to bullets fired).



Weapons

The basic fighter weapons offered in Fighter Ace are cannon and machine guns. Some airplanes have both and some have only cannon. The actual number and abilities of each weapon vary from one type of plane to another. The best advice is to *know your airplane*. We'll outline specifics in the next chapter, but generally on a fighter, guns are mounted in one or two of three possible positions—on the nose, on the fuselage, and on the wings.

In the real world a nose-mounted gun (such as what's found on a P-38, Bf109, and Yak) poses the least amount of computational problems, and wing-mounted guns cause the most. This is because a nose-mounted gun generally fires straight in front of your aircraft, and wing-mounted guns are usually set so that their line of fire *converges* somewhere out in front of your aircraft.

Of course where this convergence point is located is very important because your greatest fire and killing power is where these two (or more) bullet streams meet. Fighter Ace relieves you of knowing such trivia and has homogenized, if you will, its weapons. Nose-mounted and wing-mounted gun effectiveness is based on the same range and 'lethality' modeling. So there's no need to know exactly where in space your six .50-caliber machine gun bullet streams theoretically meet as long as you consider your distance from the target and angle of lead. This is why the Distance Tags that give you the distance-to-target information on your screen are so valuable.

Lethality

On a general level, the first thing you should remember if you're not flying in the Free-for-All game or at the Rookie skill level is that ammunition is *not* unlimited. So conservation should be a key concern. In addition to learning to restrain yourself from spraying bullets all over the place, there's another consideration to help you conserve precious ammo—different aircraft have different ammo loads. Don't confuse this with the ammo round count.

Some aircraft fire cannon shells in addition to their standard machine gun shells, which can dramatically increase your killing potential, or decrease it after your cannon shells run out. Also, the killing power of each weapon depends on the distance to target. Cannons fire further than machine guns (approximately 1000 feet for cannon and 800 feet for machine guns) and do more damage. So one might conclude that a cannon-equipped fighter would be the ultimate. Unfortunately cannons (and machine guns for that matter) do have their limitations.

Cannons overheat easier than machine guns (overheating either weapon renders it useless until it cools down sufficiently), and they don't fire very fast (rounds fired per minute). On the other hand, machine guns fire quickly and don't overheat as fast, but they have a shorter lethality range and don't do as much damage when they hit.

Here are some notes and hints to help maximize your weapon lethality:

- If your aircraft is equipped with cannon and machine guns, all weapons fire at once when you pull the trigger.
- Don't fire your weapons when you're out of range. You may overheat them and find yourself in real trouble when you need them.
- Even when you have unlimited ammo, use short bursts to preserve your cannon fire by not letting it overheat. You cannon will overheat before your machine guns.
- Rely on cannon for long-range attacks and machine guns for close-in fighting. Plan your firing-heating-cooldown pattern strategy accordingly.
- You'll be able to fire more rounds in total if you don't let your weapon overheat.

Straight-Shooting Son of a Gun

Now that we've discussed weapons and ammo, let's talk about how to use them effectively. Fighter Ace doesn't model lead-computing gunsights (which didn't become available until around the middle of World War II). This means you—just as the pilots back then—need to rely on your skill and experience to figure out mentally how much lead is necessary to get hits on targets.

When shooting with a static gun sight (such as the cross hairs in the center of the Front Full View), you have to interpolate where your bullets will end up based on your current position, speed, effects of gravity, and distance from your target. Unless your opponents want a place in your kill statistics, they won't be flying straight and level when you shoot at them. (What's that joke? "Players are dying to get on your kill list!") This means you need to "pull lead" (shoot ahead of your target) and compensate for gravity drop. While even the greenest Fighter Ace pilots generally know this, what isn't always known is how much lead must be pulled to get hits.

There are basically two methods you can use in Fighter Ace. The first uses a garden hose metaphor. The concept behind this method requires you to



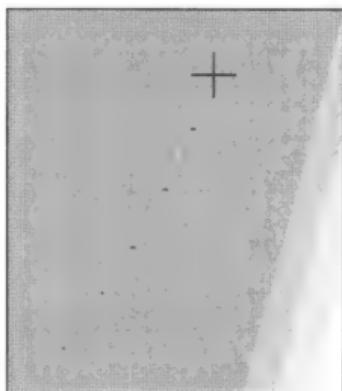
envision your tracer stream as a stream of water emerging from a garden hose. You then need only to maneuver your airplane so that the stream hits your target. The drawback to this method is it can waste a lot of ammo if you're not careful.

The second method relies on pilot instinct. Of course instinct can always be enhanced with a little knowledge and training. First, your bullet stream will appear to follow a slight upward arc and then begin to drop off towards the end of its path. Note the word "appear." Bullets more or less fly in a straight path until they begin to drop off toward the earth as their velocity drops due to gravity. When you move the nose of your airplane, the bullets appear to arc in the sky because the nose and gun(s) have moved slightly during the interval between each individual projectile firing. The direction of arc will also be in the exact opposite direction of the movement of the nose of your aircraft. In other words, your bullet stream will appear to arc to the left when you turn the nose of your airplane to the right.

There's nothing written anywhere that says you need to follow only one of these methods. You can use both. Use your instincts to start your shot, and then move to the garden hose method to fine-tune your aim. Nothing can help you more with your marksmanship skills than practice. That's what the Rookie skill level and Practice Flight are for, so make use of them.



The boresight found in the center of the Front Full View requires you to interpolate where your bullets will end up based on your current position, speed, and distance from target.



Bullets appear to arc in the sky when you move the nose of your airplane.

Tip: *In the real world—regardless of your airplane's orientation in the sky—a bullet stream will arc slightly toward the earth. Although the modeling of gravity on your projectiles (bullets and cannon shells) in Fighter Ace has been somewhat reduced, you should compensate for it.*

is because Fighter Ace models damage areas on each airplane. Over and above the various durability characteristics (modeled as protective armor) of each aircraft, Fighter Ace's damage modeling causes certain areas of an aircraft to correspond with higher or lower hit or damage values.

There are five hit regions on each aircraft in Fighter Ace—the fuselage, the wing, the tail, the backwing (horizontal stabilizer) and the elevator. Hits to the wing will not produce as much damage as hits to the fuselage. As you'd expect, hits to the wing will cause damage to associated systems in that area such as flaps or landing gear.

Attack Tactics

In essence, there are really only two basic attack positions—H2H (Head to Head) and H2T (Head to Tail). The nose is where your guns and other weapons fire from and your target will face you with either its head (nose) or tail (any other part of the aircraft). As mentioned earlier, for our discussions the distinction between head and tail is based on offensive capability. Anything other than the nose can be considered the tail because it can't shoot at you. Naturally, the most desirable position is H2T because you're offensive, but more importantly, your target is defensive. (Fighter Ace currently only models fighters.) By contrast, H2H is dangerous because even though you're offensive, so is your opponent. You can be shot down, too!

Let's look at each attack individually.

Head-On Merges

Taking out an opponent on a first head-on pass is great fun because it's quick and usually spectacular. But most of the time it's a big gamble because you never know if you'll win or lose. So when you're faced with a H2H confrontation, you have to first make a decision to go for it, or to try and avoid



it. Each choice has its drawbacks. If you try to avoid the head-on, you become defensive. While voluntarily putting yourself in a T2H situation seems like suicide, sometimes it's the only way to stay alive.

When you're faced with superior firepower, such as when confronting a Fw-190 or a pilot with superior marksmanship skills, going toe to toe will invariably result in your going down in a ball of flames. If you choose the alternative—avoiding the H2H confrontation—you're jumping to the Maneuver stage, so we'll leave that for later. Let's look at two methods for increasing your chances of coming out on top in H2H attacks.

Bob 'n' Weave

As you've probably surmised, the H2H attack is like trying to choose the lesser of two evils. To get the best chance at shooting your opponent down, you need to fly a steady course relative to your target's position. While this increases your chances of putting holes in your opponent's shiny airplane, it unfortunately also increases the ability of your intended target to reciprocate. Conversely, flying a course that gives your opponent a difficult shot at you (a high angle of deflection shot) also makes your shot at your opponent more difficult. So what's a budding future Ace to do?

By far the best (read "safest") solution is a compromise. Fly a weaving course enroute to your H2H pass. Fly your pattern so that your bullet stream will cross over your target. When your target's lined up, squeeze off a few rounds.

The pattern you fly is totally up to you, but to give you an example, try flying so that your gunsight or bullet path draws a figure eight around your target. This can give you double the targeting opportunities in addition to altitude and heading changes and complicate your opponent's shots at you. A side benefit is that this technique is that it also reduces the likelihood of head-on collisions. While properly executed weave-and-fire attacks won't net as many spectacular kills as when you gamble on toe-to-toe fights, your H2H survival ratio should improve.

Shoot 'Em in the Back

Although it may not seem chivalrous, the best attack position in Fighter Ace (where there are no aircraft with tail gunners) is a H2T shot. This is because the enemy can't shoot at you, you don't need to lead your target as much to shoot at it, and you can see what your enemy's doing. This makes his or her evasion attempts much more difficult.

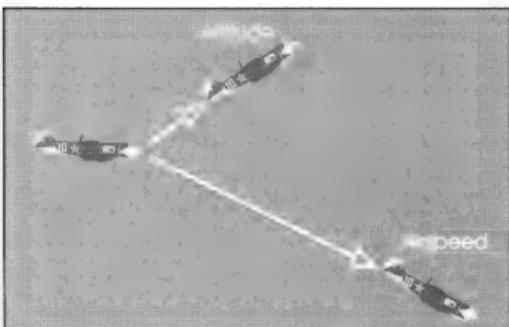
While it is most desirable to attack unsuspecting fighters from the rear, you'll rarely get the opportunity for such attacks without some effort on your part or blunder from your enemy. The majority of the gun opportunities you'll come across will be deflection shots. In either case, because the guns of your intended target are facing away from you, you're usually not in immediate danger since you're not dodging bullets. So you'll be able to plant your gun sight on your target and keep it there. Even if this sounds easy, there are pitfalls to avoid with rear and flanking attacks.

E = Energy

Before we move on, we need to talk about energy (E) management. E management is arguably the most important concept and skill a Fighter Ace pilot needs to learn and fully understand. E management skills (conservation and expenditure) are what separate the Aces from the targets.

E is categorized as either *kinetic energy* or *potential energy*. Kinetic energy is airspeed, and potential energy, altitude. Potential energy can be converted into kinetic energy by diving, and kinetic energy can be converted into potential energy by climbing. Although both may seem of equal importance because you can convert one into the other, in the world of air combat, potential energy has the edge *most* of the time. This is because even if you have a massive amount

of kinetic energy (airspeed), that energy will allow you to achieve only a lesser level (altitude) of potential energy. For example, diving from 30,000 feet all the way down to 15,000 feet will net you a very fast airspeed; but it'll only allow you to climb back up to, say, 25,000 feet before you end up going below your starting airspeed. Consequently, you've basically lost 5000 feet of potential energy.



Potential energy (altitude) can be converted into kinetic energy (airspeed) by diving, and kinetic energy can be converted into potential energy by climbing.



E can be airspeed, altitude, or both. At maximum throttle the only way you can increase your airspeed is to dive, but in order to be able to dive, you have to have some altitude. In spite of the fact that you can trade one form of E for the other, the maximum total you can achieve is relative to the E you possess at that time. Altitude will get you airspeed, and airspeed will get you altitude, but if your total is less than that of a nearby enemy, you're at a severe disadvantage. Let's talk about a couple of things you can do to avoid or lessen the effects of that kind of situation.

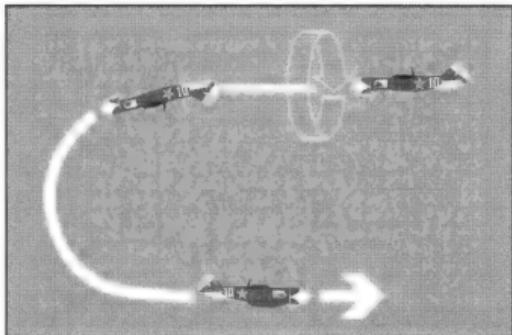
When grabbing E (climbing) retain enough airspeed, at the very least, to be able to make good use of the vertical plane (do a loop). If you lack the airspeed and try some vertical maneuver, you'll become too slow near the top, and the enemy will kill you as you hang in the air in front of him or her.

If you get caught unprepared (with less airspeed than is required to go vertical), you'll be left with only the option of turning toward the earth or on the horizontal plane. Neither is ideal as both severely limit your options.

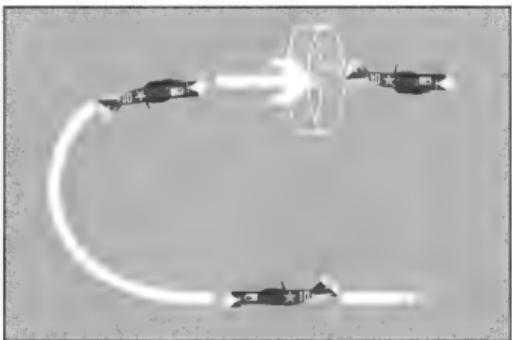
If you have virtually no airspeed (as in barely enough to remain in the air), turn your nose low to use gravity to assist in the turn. You can accelerate very quickly with the assistance of gravity, but never forget that after any potential E trade, you almost always end up with a net loss.

Gravity...It's the Law

Turning toward the ground will increase your airspeed because gravity will increase your speed in a dive, but it'll work against you in a climb. Your relationship with gravity remains constant during vertical maneuvers because moving on the vertical plane requires climbing or diving. Consequently, gravity can help you sometimes and hinder you at others. But just as with most things, if you



The Split-S is a half roll followed by a half loop.



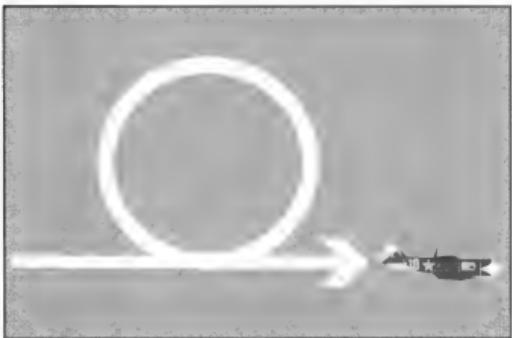
The Immelman is a half loop followed by a half roll.

combat. Both the Split-S and the Immelman are examples of this. They're both comprised of half loops with a half roll added before and after the loop sections, respectively.

Unless you go out of your way to fly a perfectly symmetrical loop (like a perfect circle), a loop will look like a hastily written, lowercase script e. The

understand it, you can take advantage of it—or at the very least, minimize the unwanted effects caused by it.

A good maneuver that illustrates the benefits and consequences of gravity quite well is a straight loop. When you break up a loop maneuver into smaller components and then analyze them, you'll recognize portions of other maneuvers that are performed frequently in air



Symmetrical loops do not happen by accident. They require skill and effort to perform.

loop entry starts smoothly, goes vertical, sharply curves at the top, and then the exit gently curves. It finally ends an altitude lower than where it started.

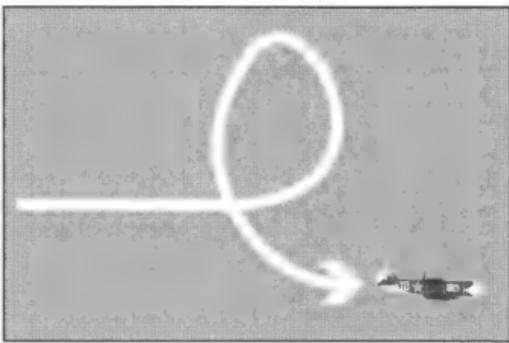
Let's take a look at what happens by breaking the loop down into sections. At the start of the loop, you generally make a smooth pull-up because you'll either black out or exceed your aircraft's performance limitations if you don't. At this point gravity and centrifugal force



work against you. This is because at the same time you're trying to climb, gravity is pulling you down and bleeding off your airspeed. Near the top of the loop, your aircraft slows down even further. The combination of gravity pulling you back toward Earth, lower centrifugal force, and your slower airspeed produces a tighter turning radius. Because gravity is pulling in the direction you want to go, it causes the top of the loop to narrow.

As you travel toward the bottom of the loop, the exact opposite occurs. Your airspeed increases, increasing centrifugal force, which subsequently increases your turning radius. Gravity is also back in the fight, so you have to deal with blackouts again. These conditions cause the loop exit curve to straighten. Most of the time you'll also find that you're at a lower altitude than when you started. That's because in order to exit the loop back at your starting altitude, you'd have to decrease your airspeed on the way down and end up at a slower airspeed at the finish.

Whether you end up at your starting altitude at a slower airspeed, or at a lower altitude with a comparable airspeed, the results are the same—a net loss of E. What you need to understand from this example is that when diving towards Earth, gravity helps you; when you're climbing away from the Earth, gravity works against you.



In practice, most Loops more commonly resemble a hastily written, lowercase script e.

(Virtual) Physical Performance

In the real world, blackouts are the result of G-forces impeding bloodflow to the brain and occur when you pull up at high speeds or turn at very high rates. Red-outs, which occur in steep dives, result from G-forces creating too high a pressure in the brain. In either case, the effect is progressive and can result in

complete unconsciousness if the action that initially caused it continues for too long.

These virtual physiological effects in Fighter Ace can become more than minor inconveniences in the Intermediate and Advanced skill level games. This is because they may result in some screen degradation. The net effect is similar to turning down the brightness control on your monitor—in most cases, this results in a situation that is inconvenient, but not impossible. At its extreme though, your view is one of total obscurity. In any case, your vision will clear when you ease up on your speed or angle of attack.

More specifically, the way blackouts and red-outs have been modeled are:

Blackout: Pull more than seven Gs and you're in one. The effect lasts for two seconds unless the player is still subjected to more than seven Gs. In this case, the blackout will continue for an additional two seconds, and so on.

Red-out: If you experience more than negative two Gs, you're in a red-out. A red-out turns the screen red as opposed to the black of a blackout. This condition will last for two seconds unless you continue to take more than negative two Gs. If you do, the red-out continues for an additional two seconds.

Boomin' and Zoomin'

One of the oldest (and arguably the best) air-combat tactics is known as the Boom and Zoom (BnZ). The ideal BnZ goes something like this:

1. From a position of superior altitude, dive on your (preferably unwitting) target to gain airspeed.
2. Blast the target with your guns as you close.
3. Speed out of harm's way.
4. Enter a climb to regain E.
5. Turn around and do it all over again until the enemy is dead or you run out of E or ammo.

Although this seems simple enough, there are a few things you need to consider to be an accomplished BnZer. Let's take a look at them.

Where the target is in relation to you and how it is oriented will determine the danger potential and how you may want to carry out the dive. Nonetheless, even though Fighter Ace's aircraft have been more or less evened out, you will need to consider your aircraft's limitations. This will determine your dive angle and attack options. If your aircraft can fly at high speeds, you may not want to



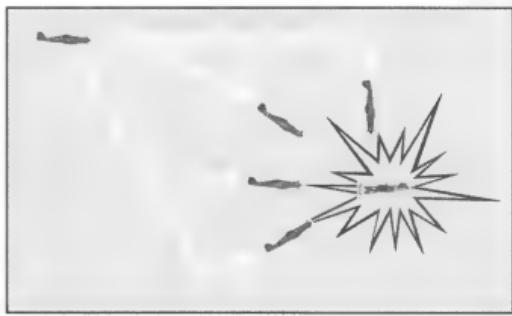
dive at a steep angle or you may not be able to pull out before becoming a grease spot on the ground. One way to avoid that is either to reduce your throttle or use your brakes (air brakes are only available in the Arcade arenas).

There are four types of BnZ attack runs; the level run, high-slashing run, vertical run, and low-slashing run. The traditional BnZ lines you up for a head-on level pass at your opponent or a high-slashing (about 45 degrees or so) attack. Unfortunately, each has its problems. We already know the level, high-speed, head-on attack can be dangerous because you can be shot at and your bullet flight path is usually almost identical to your flight path during level flight. But for what it's worth, the benefit is that you're not expending E when flying level. While you can use the weave-and-fire technique and attack from a slight angle, generally a level attack is pretty dangerous.

High-slashing attack runs cause gun-lead calculation (aiming) problems for you. As the enemy flies under your nose, you'll tend to increase your dive and try to spray bullets on the target as he passes under you. This will increase your airspeed and cause an additional loss of potential E as well. While less than ideal, this situation still has some advantages. First, it makes your opponent's shot at you harder, so you're on even ground in this respect. However, if the bandit tries to climb to meet you, even though he's gaining potential E, he is slowing



The BnZ consists of a diving attack followed by a high-speed climb out of harm's way, then reversing your course until the bandit is dead or you run out of E or ammo.



These are the four basic BnZ attack runs: level, high-slashing, low-slashing, and vertical.

down—which makes it easier to shoot. Your target will try to evade you as you make your run. This may require you to turn, but be aware that turning has a few drawbacks. One is that at high speeds your aircraft won't turn very well. If you try to turn with the target, the chances are very good that you'll overshoot and put yourself in your enemy's gunsights. The other drawback is that turning requires an expenditure of E. Every little bit of E you waste without a kill moves the battle in favor of your opponent. Therefore the general rule-of-thumb is; unless you think you can absolutely slow down enough to turn inside the turning arc (path) of the bandit to make the kill, don't turn more than 30-40 degrees on your BnZ attacks.

The vertical BnZ attack comes in very handy because you're able to attack aircraft from an angle other than head-on. The vertical BnZ's greatest asset is the high starting altitude it requires because your target usually can't shoot at you without trading a tremendous loss of speed. If your opponent raises his nose to shoot at you, he'll bleed E and make himself an easier target for you on your next pass. This is especially true if the bandit's acceleration is poor. Moreover, the bandit's combat options are limited, and all of them are within your visual sight during your attack. Regardless of where the bandit tries to run, you'll see him. Furthermore, if he does run, you will net a H2T shot at him, regardless of the direction he chooses.

The low-slashing attack consists of a dive below your target and a climbing attack run at your target. The only good time to use this kind of attack is when you're facing a target that doesn't have a belly gunner or is more or less committed to flying level. Besides the facts that bombers most commonly fit the bill, and Fighter Ace only models fighters, the disadvantage is you'll lose the most E with this type of attack run, because you dive lower than your target.

Tip: *Watch your speed closely. You'll lose E like crazy with vertical attacks if you're not careful. Remember that any time you move the nose of your airplane, you lose E, and the further you dive, the more total E you'll lose. That is why you'll want to keep your dives as short as possible.*

Zoom for Room

Okay, let's assume you pinged the enemy, but didn't get the kill. Your best course of action is to sprint out of harm's way. If your E level is high enough, you can usually escape any danger posed by your (hopefully) lower E opponent.



Ideally you'll want to level out your wings and climb while you extend to regain some more of your E advantage. If your airspeed is quite high, you'll have no problem climbing and be able to put enough distance between yourself and the enemy. Unfortunately, the reality usually is that your airspeed is probably not as high as you'd like it to be, so you'll need to sacrifice (decrease) your rate of climb in an effort to exchange altitude for greater separation distance.

At this point your main goal is to extend to the minimum required to turn around and begin your next attack run without having the approaching bandit shooting at you before you're ready to shoot back. This distance varies based on your airspeed and the bandit's E state, turning skill, and resolve to chase you, but a good extension distance is generally around 5000-7000 feet. After a few attacks, your E level will bleed low enough that climbing and extending will be impossible. This would probably be the time to bug out—head for home and/or reinforcements (or press Escape if you're so inclined). These options might not sound courageous, but reversing when you're on the offensive is no good if you can't get a shot off at your opponent. You're expending E for no reason—which as you probably understand now, is not good.

Consider these final tips when executing BnZ attacks:

- Impatience is the most common cause of BnZ failure. Many new pilots either get caught off guard with bandits closing in on them before they've stored enough E, or are too anxious to get into battle and just attack before they're really ready. Don't be in such a hurry to get shot down!
- The second most common mistake is hanging around the battle too long. If you don't kill your target within a few passes, get out of there.
- Don't bleed your E unnecessarily. Be smooth and deliberate with your control movements.
- Don't get suckered into the turning fight unless you know you have at least an equal or better match in aircraft, E, and skill.
- If you reverse too soon, you'll need to fire while inverted (upside down). Avoid the temptation of following the bandit under you in this situation.
- A vertical fight is a turning fight done in the vertical plane, so the rules regarding turning fights (we'll get to those soon) apply. Use your flaps when going over the top of a vertical maneuver if you're low on airspeed. It'll increase your lift and subsequently lower your stall speed, which will reduce your chances of inadvertently going into an inverted spin. The

secret advantage of the vertical attack is that any airplane will roll faster than even the best-turning airplane can turn.

- Apply rudder in the same direction as your roll to improve your roll rate. Just remember to move it back to neutral when you've finished your roll.
- Even though your gun range is limited, fire earlier in head-on attacks. The combined velocity of your two converging aircraft will quickly decrease that maximum distance, and you just may land a hit. An extraneous ping (even when little or no damage is actually done) can be very demoralizing to the enemy and can yield you an advantage if you can cause the bandit to turn.

Avoiding the Overshoot

As we've seen, attacking from the rear with adequate speed isn't a problem if you have enough speed to extend to safety. It's when you don't have enough airspeed to extend that you get in trouble. You whiz by your target and suddenly find yourself with the bandit on your six and unable to get away! This scenario is known as an *overshoot*. You can try to dive away to put some distance between you and the enemy, but the bandit will most likely be able to squeeze off a few rounds at you before you can get away. Even though this discussion belongs with the Maneuver stage and the Disengage stage sections, if you find yourself in a position where you'll be flying past your target, it's better to punch the throttle and keep on going than to try to force a bad position.

If you try to turn at high speed, your turn radius will be large, and that will usually allow the bandit to pull lead and shoot at you. (High speed will increase your turn radius—we'll discuss why in the next chapter.) How well your aircraft performs will dictate how critical this situation is. If your aircraft is a poor turner compared to your opponent's, slowing down to try to avoid the overshoot puts you in a bad position as well. You might get more rounds off, but if you don't make the kill right away, you will have bled off some of your E and will be stuck facing a turning fight at a disadvantage.

On the other hand, if your aircraft is the superior dogfighter, you can bleed off your speed and enter the turning fight with the advantage. Under those circumstances, excess smash (another term for E) isn't as big a problem. The High Speed Yo-Yo is one way to reduce excess speed (and subsequently the rate of closure between your two aircraft) by making use of our simple E conversion formula—trade off speed for altitude.

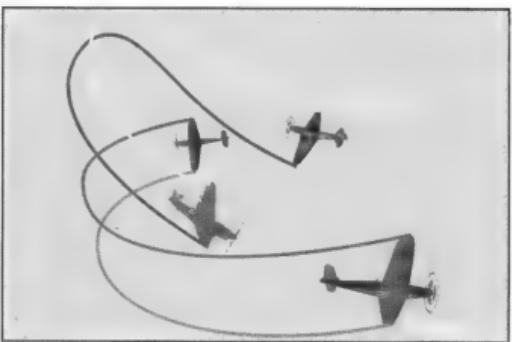


Basically the Yo-Yo is a simple turning battle maneuver that utilizes the vertical plane for energy management. In other words, you turn at an oblique angle to use gravity to achieve tighter turning. The High Speed Yo-Yo is a turning climb followed by a turning descent. (Using the rudder on the top of a Yo-Yo can help your roll performance because your controls become less effective as your airspeed decreases as a result of the climb.) The concept of the Low Yo-Yo uses the combination of gravity and your lower airspeed (reduced by the climb) to decrease your turn radius. Because of your now-longer flight path, there's also the added benefit of an increased distance between yourself and the evading bandit.

Here's our final Basic Attack

Advice: never break off an attack once you've initiated it. Once you're within weapons range, if you decide to turn and run, you'll be setting up an easy shot at yourself for your opponent. If you weren't sure you'd be able to fight in this battle, you should have avoided it during the Closing stage.

Attack first. This means firing before (but just slightly before) you're actually within effective weapons range. The idea is to fire on your target to get it to evade your fire. Although the chance of getting a kill at long range is next to none, getting that bandit's gun off your



The High Speed Yo-Yo is one way to trade airspeed for altitude in order to achieve a tighter turning radius.

Tip: *If you feel that pulling some Gs won't bleed off enough speed, reduce throttle, use your brakes (if you can), flaps, and gear (all create drag and will slow you down, but watch your airspeed in the Advanced level games because you can damage them). Use whatever it takes to slow you down. This will result in a net loss of E, but it's worth it if it gets you the kill. But don't forget about the proximity of other bandits. The tradeoff may not be worth it if you're caught out of E with other bandits all around ready to pounce. It's better to save your skin temporarily and make more kills later in the battle than to sacrifice yourself for just one measly kill.*

general direction is almost as valuable. If you succeed, you place yourself in the highly desirable H2T position.

Only attack when you have the clear advantage, and only fire when you're sure you'll get a hit. While this may sound like a very boring way to fly Fighter Ace, it's really the best way to maintain or increase your kill ratio.

Master the art of deflection shooting. In descending order of danger, there is T2H (your tail toward the pursuing enemy's head), H2H, T2T, and H2T. Obviously, the H2T situation is easier and safer to shoot from when the bandit can't get any shots off at you. But because the bandit will also want to shoot you out of the sky, that scenario will be rare and will require some work to achieve. You'll generally find yourself faced with mostly T2T situations and H2H shots, and the odds are that you'll live longer if you don't seek H2H shoot-outs. This means you'll be making mostly high-angle deflection shots.

Maneuver Stage

The Maneuver stage of air combat generally takes place after the Attack stage, but as we've touched on earlier, it doesn't always work out that way. Broken down to its essence, maneuvering is precisely what air combat is all about—maneuvering your gun platform into a position to make a kill. That's it. Everything else is just to help you reach that goal. While it's definitely conducive to a long life to get kills in the Attack stage and avoid the Maneuver stage altogether, skilled human opponents usually make that impossible. (Thankfully, too—let's be honest, the harder the kill, the more satisfying it is, right?)

Let there be no mistake about the goal of Fighter Ace and air combat—kill your target. You need to be on the offensive to do this. Maneuvering is designed either to maintain your offensive advantage or to convert a neutral or defensive position into an offensive one. Basic Fighter Maneuvers (BFMs) by themselves are neither offensive nor defensive. If you recall, your relative position in relation to the bandit(s) is what characterizes your posture.

Combat Scan

“Lose sight, lose the fight,” is another one of those axioms that air-combat sim’ers like to recite. It means that if you lose sight of your enemy, you’ll get shot down. While there is some truth to that saying, it’s possible to lose sight of (visual contact with) bandits and still come out victorious. The key to success is to develop good situational awareness skills by developing a good grasp of



Fighter Ace's viewing systems. This will help you reestablish visual contact at will.

The combat scan is an extension of the detection scan (which as you recall is an extension of an instrument scan), which now includes the relative positions and orientations of the other aircraft in your vicinity. Unlike the detection scan, the combat scan is based around a bandit view instead of the front view. This is because you'll sometimes be unable to see the ground in the front view, so you'll have to resort to one of the other views that has the horizon in it. Based on what you see, you'll then have to correlate your orientation based on that information. What you're looking for is whether you'll hit the ground—or run out of E—if you continue doing what you're doing, or if you can do the maneuver you want to do. (E status information is gathered through your instrument scan.).

A basic combat scan alternates between the bandit view (which can be any Fixed, 3D, or Padlocked 3D view); the front view or other view that shows the horizon; the airspeed indicator; and the altimeter. The bandit view gives you information on maneuvering strategy, the horizon view warns of impending flying trends, and both airspeed and altimeter indicate whether you're flying at the best performance parameters or flying too low.

This may sound complicated, but broken down into steps, an effective, basic combat scan pattern would first scan the bandit view, then the front view (or other horizon view), and finally go back to the bandit view. Next scan over to airspeed and altimeter before starting over again back at the bandit view. Next mix in sub-scans that include ammo count, radar or map, and some standard instrument scan stops such as the heading indicator, flaps position, WEP, radio system or damage messages.

Just as with any kind of scan, always keep your eyes moving. A common mistake is fixating on one display, bandit, or view. Another mistake is omitting or skipping some display or aircraft. You have to constantly read, compare, and analyze what you see or you will lose the fight, guaranteed.

Tip: *Try to visualize where you are and what you're doing: it can help tremendously. Obviously, you won't see everything in your mind's eye, but visualizing the situation can help you keep up on what needs to be done. Effective combat flying requires you constantly to think ahead. This isn't only so you don't get caught off guard, but also because the work load becomes so high in the heat of battle that if you get as much done before you're in the "thick of things," it'll just make everything that much easier.*

Defending Against the BnZ

It's important to understand that the Attack stage does not need to precede the Maneuver stage. We've already discussed why you should never break off an attack after you've initiated it. Avoiding the head-on attack is a strategy that may seem to go against that recommendation, although it really doesn't. To illustrate why, let's look at a head-on attack.

Avoiding the head-on attack and breaking off an attack are two different things. This is because avoiding the head-on is only temporary. Your goals for avoiding the head-on attack are two-fold: give your opponent the hardest shot at you possible and maneuver yourself to an offensive position.

The most difficult shot in air combat is the high-angle of deflection shot. If you are forced to give a shot to your enemy, this is the only shot you'll want to give them. You can accomplish this by showing the side of your airplane to your opponent at the highest rate of relative speed. To do this, fly at full throttle on a flight path that'll put the bandit on your 10 o'clock or 2 o'clock position. An additional shallow dive or shallow climb will further complicate things for your opponent. The key to getting a quick kill or staying alive after the merge is to time your next turn correctly and turn in the correct direction. We'll cover how to do this, but first let's look at the factors that you must consider before you can make these decisions.

Know Yourself and Know Your Enemy

Know your abilities as well as the capabilities of your aircraft. It doesn't hurt to know the capabilities of your opponents' aircraft either. While you can estimate the piloting skills of various Fighter Ace pilots by viewing their scores, the specs and characteristics of all of the aircraft modeled in Fighter Ace are listed in the next chapter. Armed with this information, you can decide on a basic attack strategy. In any case, your goals are to out-turn the bandit and make it bleed E. Let's talk about how to accomplish these goals.

Fighter doctrine can be boiled down to two basic aircraft flight-performance characteristic types—a dogfighter or an energy fighter. Generally, if your airplane is more maneuverable than your opponent's, it'd be advantageous to lure him into a turning fight. On the other hand, if your aircraft isn't as maneuverable as your opponent's, you want to avoid the turning fight because you'd be at a disadvantage if you got into one. If your maneuverability is equal to or better than your opponent's, you want to turn as soon as possible so that



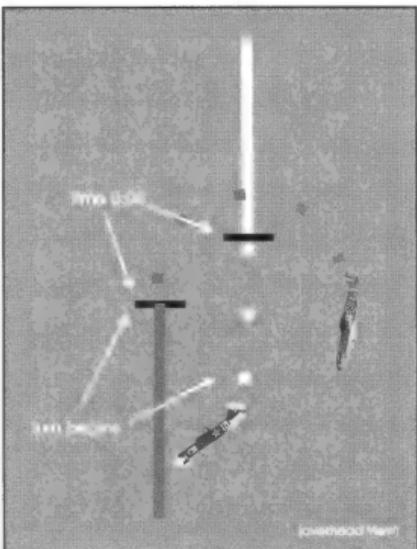
you can shoot at him before he can shoot at you. This maneuver is known as the Early Turn. If your maneuverability is inferior to your opponent's, but your speed is greater, you'll want to make your turns as far away as possible from him so that you can turn before getting shot. This, of course, is the basis of the BnZ attacks.

The Early Turn

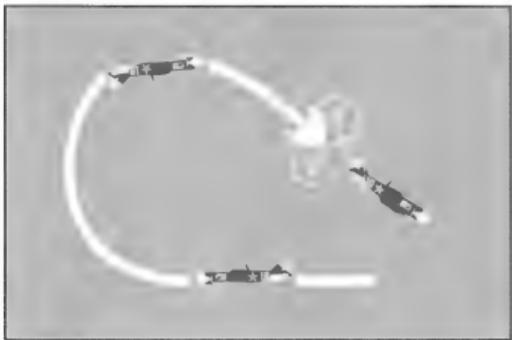
In addition to deciding which direction to turn, one of the most important aspects of maneuvering is knowing *when* to turn. When you start your turn can affect the position of the outcome. If you turn too early, you'll give the enemy a rear-quarter shot at yourself. If you turn too late and the enemy is also turning, he or she will arrive at an offensive position sooner than you will. But if you're being BnZed, turning just as the enemy comes into weapons range can yield several advantages in your favor:

- It only allows the BnZer attacker a high angle of deflection shot at you.
- You may lure your opponent into following you through a turn—which will cause him to bleed off a lot of his E.
- You may sucker the bandit into a turning fight.
- You'll arrive at an offensive position faster than your opponent.
- You can procure a tail shot at your opponent if he tries to zoom by.

Because air combat takes place in a three-dimensional environment, the directions you can turn include up or down in addition to left or right. Your current E state, aircraft abilities, and enemy position will all dictate your best options. Although you can climb or descend while turning, you're basically

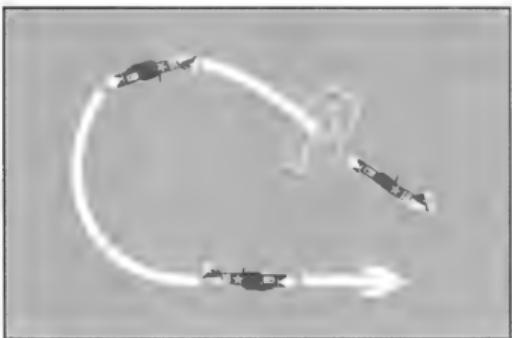


The Early Turn can help you arrive at an offensive position earlier than your opponent.



The half-Cuban 8 is a good vertical turn to use if your airspeed is fairly high.

more vertical turns, such as the half-Cuban 8, Reverse half-Cuban 8, or Chandelle. This is because you can turn around faster if gravity is helping you. If your E is low, a slice back or Split-S will work nicely because gravity will help you build speed on your attacker as he tried to extend.



The Reverse half-Cuban 8 is another good vertical turn to use when your airspeed isn't as high as you'd need to go over the top.

dealing with left-hand or right-hand combat turns (maximum rate, minimum radius turns).

Which way you should turn depends on the relative position of the bandit, the angle of the bandit's attack run, and your airspeed in relation to your present minimum-turn radius.

If you were to look at this problem from only an airspeed perspective, and if your airspeed is fairly high, you'll want to use one of the

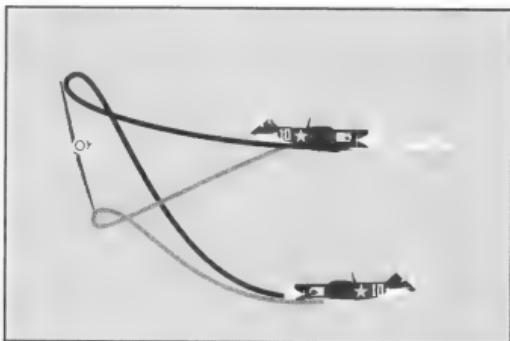
The offset between your position and the bandit's attack run will decide in which direction you should turn. When facing a BnZ attack run and countering with an early turn, turning away from the attacker yields an advantage. Although this goes against one of the basic rules of thumb you may have read about in the past, this is an exception. Although turning in either direction causes gun solution problems for the attacker, an early turn toward



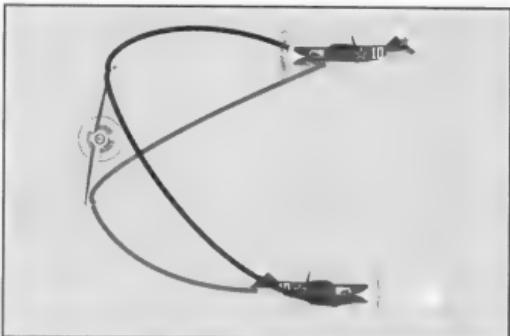
the bandit gives him a snapshot chance to shoot you as you pass across his nose. Turning away may sucker the bandit into turning with you in an attempt to get a shot off at you. This will bleed some of his E. Finally, if the bandit turns with you even a little, it decreases the radius you need to turn to get on the bandit's six as he tries to extend.

Regardless of any BnZ defensive tactics you may use, always lead-turn the bandit and shoot him as he attempts his Zoom. If you can get a few hits on with each pass, you can eventually kill the bandit—that is, if you can keep from getting shot down yourself. Make the attacker bleed airspeed with every pass, and make the bandit dive lower than you, or turn as much as you can on every pass.

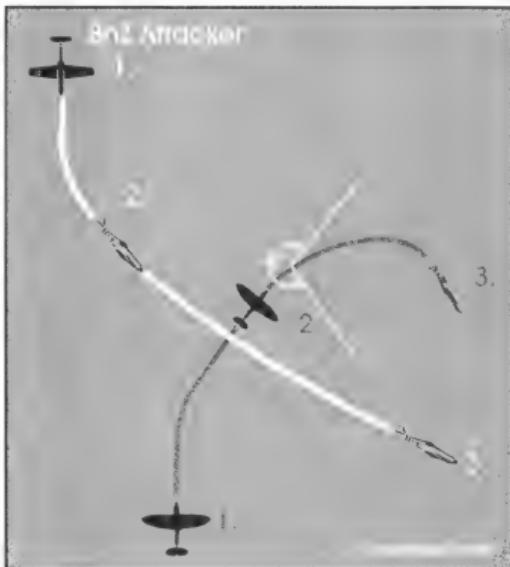
Finally, know a well-timed lead turn will make it hard for the BnZ attacker to get away. This usually causes inexperienced pilots to try to climb vertically or dive away. Either will bleed the attacker's total E level further. If you can maintain your E level as high as possible, the bandit will slowly lose any E advantage he or she may have had over you. Of course, if your opponent really knows his stuff, he'll be hard to beat.



The Chandelle requires the same amount of airspeed as the Reverse Half-Cuban 8 to perform, but it won't cost you as much altitude.



The Slice Back becomes particularly useful when you're low on E.



Turn away from a BnZ attacker to avoid the head-on (1), to lure the bandit to turn with you (2), and decrease your radius to get on the bandit's six (3).

an Energy fight before trying the Angle fight. This is because once you've bled off any energy in a turn, it's very difficult to recoup that E again while bandits are trying to kill you.

If you're ever going to attempt an Energy fight, it's best to do it when you have the most energy yourself. This means you must execute the Energy fight before making any turns because turning or climbing will cost you E. If you decide the time is right for the Angle fight (rather than finding yourself in one—you always want to fight *your* fight), then you want to undertake Turn and Burn (TnB) fighting.

Regardless of posture, the most favorable relative enemy aircraft position for you is ahead of your 3 o'clock through 9 o'clock line because you can change or maintain any posture into a more favorable purely offensive or

Most inexperienced BnZers don't know when to quit. So when the bandit gets too slow, you'll be able to kill him because you'll now have the E advantage, and if you've absorbed what we've been talking about, you'll also be in an aircraft that turns better.

Turn and Burn

"Turn and burn" is a phrase used for dogfighting. Although there are no hard-and-fast rules that apply for every situation, if you don't know the relative performance of your opponent, or if you have trouble identifying the exact model of the opposing aircraft and you're not flying one of the slowest airplanes around, consider attempting

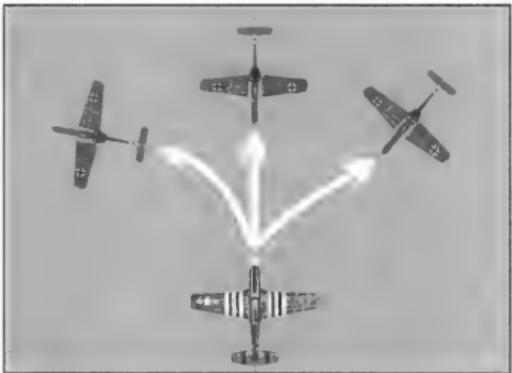


offensive and defensive one—and with the least amount of effort. When faced with this situation, always turn toward the bandit.

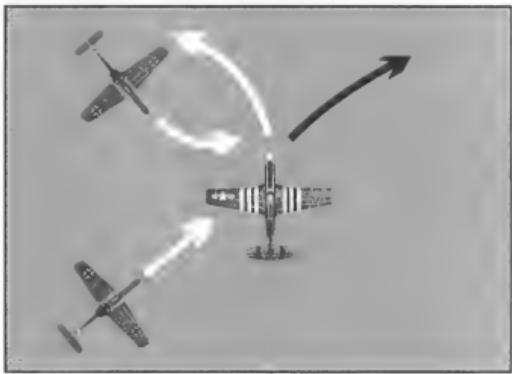
Although this usually results in some sort of head-on pass, it accomplishes two things: it points the nose of your aircraft in the general direction of the enemy, which increases your ability to shoot at it (making you offensive), and it denies the bandit a T2H shot at you.

If you're purely defensive, regardless of the bandit's relative spatial position, always turn toward the bandit unless you're jinking, avoiding another head-on, or doing an early turn. If you turn away, you'll just be giving the bandit a lower angle of deflection shot at yourself—which is a really bad idea!

The best way to keep yourself out of that defensive position is to pick your attack and make the kill. But that's easier said than done, so here are a few techniques you can use to increase your ability to make the kill in a turning battle.



It's preferable to keep bandits ahead of your 3 o'clock through 9 o'clock line.



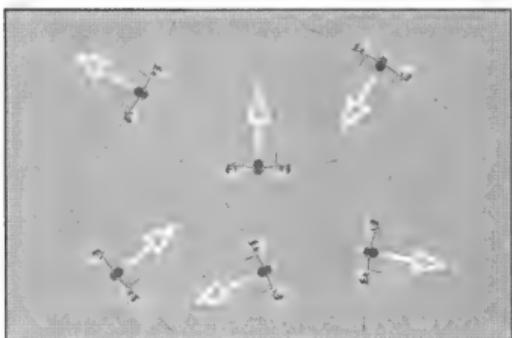
If you're in a purely defensive position, always turn toward the bandit, or you'll just give the bandit a low angle of deflection shot at yourself.

Lift Vector Dogfighting

Lift generation is a force that acts "perpendicular" to the wings. This is referred to as the Lift Vector. Regardless of your airplane's orientation in the air, your lift vector acts perpendicularly (at right angles) to your wings. The fact that an airplane generates more positive lift than negative lift (nose up as opposed to nose over) is the basis for high-performance turning in a dogfight. If you find yourself in a turning fight, and putting aside E maintenance for now (we'll come back to this in a minute), the way lift vector dogfighting works is like this:

1. Roll in the direction of the bandit and pull back on the stick.
2. Switch to your Up view (press **U**) as you continue your roll. Stop rolling when the bandit is centered in your Up view. Adjust your roll to keep the bandit centered in your Up view. This is known as putting your lift vector on it.
3. During all of this, keep pulling back on the stick. This will cause the bandit to move toward the upper section of your Up view, which is exactly what you want to happen.

Switch back to the forward view and keep pulling. If you can get a shot off while inverted, take it.



Your lift vector always acts perpendicular to your wings regardless of your orientation in the air.

Naturally, without vigilantly watching your E level when turning like this, you'll expend all of your E and your airplane will wallow in the air like you're flying an aluminum lawn chair instead of that high performance fighter. The only way to prevent such a catastrophe is to learn good E management techniques, so let's talk about those concepts next.



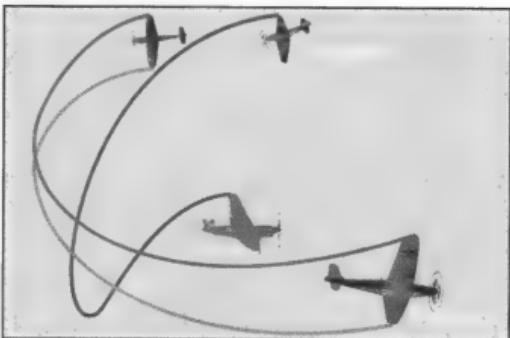
The Other Yo-Yo

In any turning battle your goal is to out-turn your opponent and gain an angular advantage on him. What makes this difficult to do is that to turn tighter, you need to pull maximum Gs at the lowest airspeed possible. This is known as *cornering speed*. The problem is as you pull Gs, you bleed airspeed, and if you lose too much airspeed, your wings won't be able to generate enough lift to return the required G. Because the elevator (or rudder, depending on your orientation) controls airspeed (throttle controls altitude), the Low Yo-Yo is an energy management technique to maintain corner speed. If you can maintain corner speed and your opponent can't (in roughly equal aircraft), you'll eventually gain the advantage—even if you're defensive to begin with (and not blown to pieces by a bandit right away).

On the surface, the Low Yo-Yo may seem exactly the same as the High Yo-Yo. But it's actually the exact opposite in both execution and result. Instead of beginning with an initial climbing turn, the Low-Speed Yo-Yo is an initial descending turn followed by a climbing turn. But in a more practical sense, the main difference between the two is *when* they're used.

The classic example for the use of the Low Yo-Yo is when you have the throttle pushed to the firewall and you're below cornering speed (probably turning with low or no energy reserve). The initial turning dive increases your airspeed and increases your rate of closure with your target. As you know, the initial dive converts altitude to airspeed. This puts you back into a more favorable position on the turn performance curve. The increased airspeed also decreases the distance between you and your target.

In essence, the Low Yo-Yo moves your airplane's nose above and below the horizon to increase and decrease airspeed while



The Low-Speed Yo-Yo begins with a descending turn followed by a climbing turn.

turning. Take into account the following tips to use when performing the Low Yo-Yo:

- At the top of a Yo-Yo you may require some rudder input because your controls may become less effective due to your reduced airspeed resulting from the climb.
- If you keep your nose high too long, you will stall, and banked stalls often result in spins. Either will cause an E loss with no gain and very poor turn performance.
- A series of small Yo-Yos is more effective than a single large Yo-Yo.
- Avoid extreme dives or climbs and you'll be able to maintain your airspeed better. But if you can get a kill and it won't put you in immediate danger, go for it!

Fighting Through Loops

You'll find that many of the turning battles with experienced pilots in Fighter Ace will take place on the vertical plane rather than the horizontal plane. This type of fighting commonly degrades into what is known as *loop fighting*. As we've been discussing, the reason going vertical is so popular is that it can be a more efficient way to turn. The deciding factor for which is best depends on pilot proficiency, specific aircraft performance, E state, and your current strategic positioning with regard to your opponent.

Nevertheless, going vertical to turn does offer an inherent advantage over a high-rate level turn—a level turn will bleed your E without recouping any of it. After a level turn you end up with a loss of kinetic E. This is because level turning to the left or right nets the same losses, but when you're moving in the vertical plane, going up or down yields very different results because of the effects of gravity. These differences affect both your E status and your turn rate. If you can use the vertical and cause your enemies to bleed E faster than yourself, you will out-turn them—a necessary prerequisite to killing them in a turning fight.

There are several tactics to be used against a loop fighter:

- Break out of the looping pattern, extend, and begin a BnZ attack against the looping bandit. The key is to time your extension so that your opponents either can't see you leaving or are at a point where they don't have the E to do anything about it. With all things being equal, you'll



find this is usually on their climb up.

- Use a climbing turn in a one-vs.-one situation. As the bandit loops over you and starts back down, roll over and kill him.
- Practice good speed control and you may be able to out-loop the bandit. Stay as slow as possible on the way down, but maintain exactly enough E to make it back over the top again with flaps. With luck, you'll be able to out-turn the bandit or cause him to stall or spin. When he does, kill him.
- Follow the bandit, but at a slower rate when he moves in the vertical plane. The idea is to expend your E at a lower rate than your opponent. This will give you the opportunity to nail the bandit up at the top of his loop if he gets too slow or to meet him with a higher airspeed on his way down if he goes that way. By not immediately following the bandit up and over, you can see what he's going to do, and you'll have the E to do something about it.

Retaining E

Regardless of the direction of a maneuver, as you're probably aware by now, it's quite easy to throw away E, so you need to be careful. A well-executed level turn can easily outperform (in terms of efficiency) a very sloppy vertical maneuver any day of the week. Rather than try to describe the proper way to fly your airplane (topics such as stick movement are pretty abstract for text), here are some pointers on what *not* to do.

Yanking the stick around and not being precise with your movements contribute to wasting E. If you're constantly adjusting your stick movements with corrections and overcorrections, you're wasting E. Of course some stick corrections are inevitable, but just remember that the more you correct, the more you drain your E reserves.

It helps to think a little ahead of where you want the stick to be (again, visualize!) and move the stick slowly—but not too slowly—to where it should be. This will cut down on the overcorrections and you'll be able to judge better just how much movement is necessary before you actually get where you need to be. This reduces the tendency to overshoot your goal.

Tip: *Even though excess control inputs can affect both ailerons and elevators, aileron movements create a lot less drag than elevator movements. Excessive elevator input leads to stalls and accelerated stalls—both of which are to be avoided at all costs because they'll steal your E.*

Moving the stick more than you actually need to will not get you to the desired aircraft position faster than if you don't use more stick. While your control surface movement is faster when you move the controls faster, if the movement is faster than the airflow over these surfaces can accept, you'll cause local disturbances and actually decrease the rate of desired aircraft reaction.

Disengage Stage

Although the Disengage stage is presented as the last air-combat stage, it should be understood that its placement doesn't necessarily signify the end of a confrontation. In air combat terms, to *disengage* means to put as much space between you and your opponent as possible until you're out of weapons range. While you can choose to disengage to end air combat at that time, you can also choose to disengage for other combat-related reasons. Without considering mission objectives, there are only four ways to resolve an air battle:

- You shoot your opponent down (and you're left flying).
- You go down in flames (and your opponent is left flying).
- You both go down (both of you crash into the ground or collide).
- Neither of you gets shot down and you both go along on your merry way to cause havoc and destruction to other Fighter Ace players.

In terms of desirability and difficulty, naturally, shooting down your opponent is the most desirable. While killing your opponent is usually relatively difficult, it isn't always the most difficult way to end the battle. Conversely, getting yourself shot down is definitely the easiest, but it's also the most undesirable. A draw will gain you a kill if you pinged your opponent enough before he crashes into the ground or if you collide with him, but you'll also get a down or unintentional crash credited to your record. Getting away when it's mutually agreeable is also easy. It's when your opponent(s) aren't cooperating (and why would they?), that you'll find disengaging to be the most difficult—and the most dangerous.

If you've already entered weapons range—and now wish to leave for whatever reason—doing so while your opponent is still flying and shooting goes directly against what we said about not breaking off an attack once begun. Well, that advice still stands—that is, until you have good reason to do otherwise. The criteria you use to make your decision to disengage can be anything from tending to your mission objectives (such as assisting a fellow



teammate in trouble) all the way to being damaged or out of ammo. But if you're flying an aircraft that's damaged, it will severely decrease your chances of disengaging or surviving (not to mention making additional kills). So let's talk next about taking damage and what can be done about it.

Damage and Repairs

We discussed Fighter Ace's damage modeling earlier. Because damage plays such a big role in your decisions to disengage, let's talk some more about Fighter Ace's damage calculations, its repercussions, and some solutions. Anytime you take a hit, the amount of damage inflicted is based on:

- Where you've been hit—wing, fuselage, tail, flaps, elevator or backwing.
- What you've been hit with—cannon or machine-gun fire.
- Power (based on distance) of the projectile when you were hit.

These variables are reflected by a cumulative damage percentage. When your damage rating reaches 100 percent, you are shot down. As mentioned previously, a visual indication of your conditions is represented by aircraft smoke trails, and the darker the smoke, the more serious the damage. Be forewarned that the sight of a smoldering aircraft has an effect similar to the release of blood in shark infested waters. All those hungry for a kill will come running and beat themselves into a feeding frenzy.

Although damage messages use descriptions such as "shot," "hit," "shredded," and "ripped," there is no difference between them. They're merely used to add color and variety. Nevertheless, when any of your digital indicators turn red, and remain red, that red-lighted system is critically damaged.

To make matters worse, depending on where you've been hit, damage can affect your flight performance. Conditions such as sluggish controls, locked flaps, and gear locked in extended position are modeled. While not all damage will cause a drop in performance, the more damage your plane takes, the easier you will be to kill. So it's best to repair a damaged plane. You can do so in one of two ways. The first is to press Escape and leave the arena. Although you will experience a longer exit countdown than if you weren't damaged (this is designed to give your opponent a chance to kill you), you won't be penalized with a down and your opponent will not score a kill if your damage is below 80 percent. The second way to obtain repair is to land at your camp's airfield. Landing at a friendly airfield (all runways are friendly in the Free-for-All game)



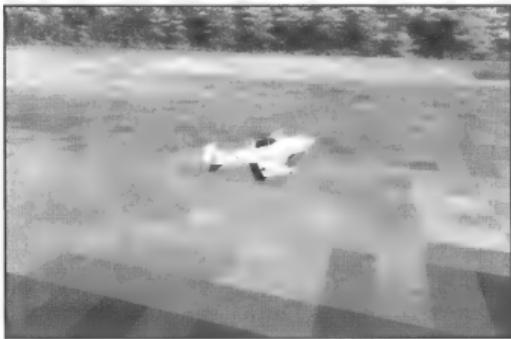
Land at a friendly airfield to refuel, rearm and repair your airplane.

lighting to help line up your approach to the runway. Slow down and configure your airplane for landing (flaps and gear) as soon as reasonable. Use your flaps to slow down and reduce your stall speed. Stabilize your descent speed by using your brakes and throttle.

Tip: *You can taxi to anywhere on the ground if you stay under 37mph.*

Control your airspeed with elevator or pitch when flying in Realistic arenas. After touchdown, hit the wheel brakes. If you're going to overshoot the runway, raise your gear, pitch up your nose, apply full throttle, and go around.

On a strategic level, landing for any reason may not be your best option if you've sustained less than 80 percent damage. This is because exiting the game (by pressing Escape) achieves the same results (you'll be repaired, refueled, and rearmed—and while in Free-for-All, started out again with E), plus you don't need to worry about being vulched while landing.



Go sightseeing! Stay below 37mph and you can taxi anywhere.



Gettin' Outta Dodge

By far, the best way to deal with damage is to never be damaged in the first place. So let's back up a bit and talk a little about some tactics to avoid getting shot to pieces. Here are some tips to help you get out of those situations that make you say to yourself "I've got a bad feeling about this."

Speed Away: The most basic way to disengage your attackers is to fly away from them. If your airplane is much faster or you possess a great deal more E than your enemy, this can be easily accomplished as we've discussed in the BnZ sections.

Spiral Turn: Basically, the Spiral Turn is a steep climbing turn in either direction. Separation is gauged by distance, so in a general sense, it doesn't matter in which direction the separation is calculated—1000 yards separation is 1000 yards separation, whether it's horizontal or vertical. If your airplane is a better climber and you have even the slightest E advantage over your opponent, you should be able to out-climb him using the spiral turn.

Red Eye Express: This isn't a maneuver that you'd try in a real airplane often, and its effectiveness is sketchy, but at this point, you're probably desperate and have nothing to lose anyway. The basic idea is to pull up into a climb and then jam the stick forward. You'll red out, but if your pursuer noses over to follow you, he reds out as well. As you recover, roll to another angle and pull out. If you dive for the ground and pull out at the last minute, it can only help you. If your opponent doesn't push over and does a Split-S instead, he will lose sight of you as you fly under his nose. If he loses sight of you and becomes disoriented, you'll increase your chances of getting away. Furthermore, the time it takes the bandit to roll over and pull may give you a little extra separation.

Call for Help: Get on the radio and call for the cavalry. Most pilots love jumping into fights where they can outnumber the enemy or attack an enemy low on E.

Fly Toward Friendlies: If no friendlies are near, or if they lack sufficient E to help you, simply fly toward friendly airspace. Just make sure you fly low enough so that your AAA (Anti-Aircraft Artillery) can get good shots at your pursuer.

Head for the AAA: Actually, when flying in Team Combat, just heading for a friendly airfield will do. A couple of seconds later...instant clear six! If you're flying in Free-for-All, if your attacker fires upon you or anything within Ack range, your Ack buddies will send your pursuer down in flames.

Fly Toward Other Enemies: The phrase "the enemies of my enemy are my friends" can sum this one up. Fly toward aircraft from camps other than your pursuers. The idea is that this new enemy might either hate your pursuer more than it hates you or will scare your pursuer enough to cause him to break off his attack.

Spin to Win: Intentionally going into a spin might sound foolish, but sometimes it works for evading some pilots. The drawback is that if it doesn't, you'll end up at a lower altitude with very little E. But desperate times call for desperate actions.

Downward Spiral: Fly around in circles while decreasing your altitude a little at a time. Before you know it (or rather before your *opponents* know it), they'll be too low and will end up making a smoking hole in the ground.

Dive, Dive, Dive! If you ever find yourself totally out of ammo, airspeed, and ideas, bring the battle down to ground level. Only use this tactic in a final act of desperation. Many times, the enemy won't follow you down. If so, you can get away. If your pursuers do follow you down on the deck, you can *hope* that they aren't very good pilots. Less skillful pilots will auger into the ground because they're concentrating on shooting you instead of watching their altitude or airspeed.

Low Split-S: Do a Split-S very close to the ground. Pull your throttle all the way back and drop your flaps on the way down. This will allow you to decrease your airspeed so that you can squeeze the bottom of the loop and (hopefully) not hit the ground. If your pursuers are too preoccupied with following you, by the time they catch on, they'll be flying too fast and do that gear-up-landing-with-too-much-vertical-velocity thing.

Crash or Bail: You can always get out of a bad situation by bailing out of Fighter Ace by pressing Escape or intentionally crashing your airplane. While there are no official penalties for leaving the arena, as we've mentioned, there are penalties involved with intentional crashing. Aside from being generally frowned upon, intentional crashing carries reduced penalties. If you've been pinged by the enemy, it'll count as a down for you and a kill for

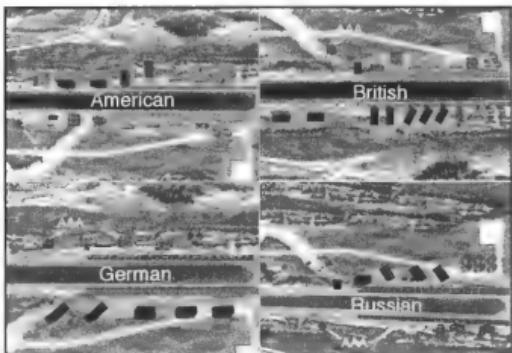


the attacker. If you were untouched, you score a unintentional crash on your record, so it really isn't a great option. But when faced with a down or an unintentional crash, remember the unintentional crash penalizes you only half as much than a down. Obviously, either option should be held as a truly last resort.

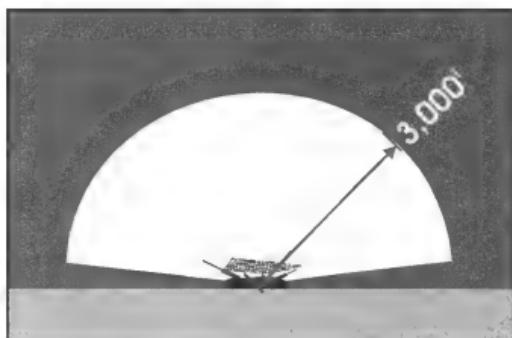
Ack: Friend or Foe?

AAA—or more as it's more affectionately known, Ack—can be an asset or a nightmare. The key to making it work in your favor is understanding how it works. Each airfield has one Ack emplacement.

In the most general terms, Fighter Ace's Ack emplacements have a range of 3000 feet, and they are extremely lethal. An emplacement's killing zone resembles an umbrella in shape (now you know where the phrase "ack umbrella" comes from) and extends a full 360 degrees around the center. But the base does not meet with the ground. The lower border actually varies with the distance from the point of origin at a slight upward angle. What this means is that you can safely fly (if flying this low can really be called safe) anywhere if you fly below 50 feet and aren't torn to



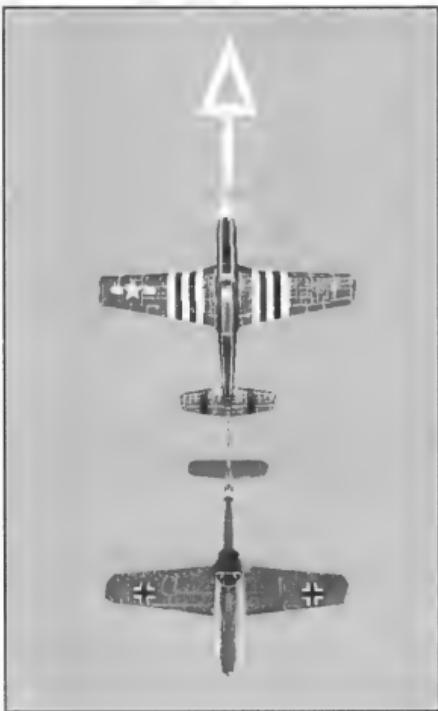
Each camp has only one Ack emplacement.



Ack is invulnerable, has a range of 3000 feet, and its killing zone extends a full 360-degrees around the center.

shreds by Ack. Naturally due to the shape of coverage, the actual safe altitude increases with the distance from the Ack emplacement.

Just who Ack will shoot depends on the game you're playing. In Team Combat games all enemies penetrating the Ack umbrella will be shot. In the Free-for-All games, things work a little differently. Because all airfields are neutral in this game, only aircraft that fire their guns within Ack range will be attacked, regardless of their camp affiliation.



The best chance you'll ever have to get away from bandit is when its nose is pointed 180 degrees from where your nose is pointed.

Doin' Fancy Pilot Stuff

If your airplane doesn't possess a distinctive speed advantage or if you don't possess a large enough E advantage over your enemy, disengaging becomes much more difficult. Your disengaging choices now narrow down to dogfighting. This is where your fancy pilot stuff either pays off or gets you killed. The best chance you'll ever have to get away is when the nose of the bandit's airplane is 180 degrees off where your nose is pointed. But to get to this highly desirable position usually means that you've bled E while turning to get you there in the first place. All of which greatly reduces your ability to speed away safely again.

Herein lies your dilemma—if you keep your E high by making gentle turns, you'll most likely get your tail shot off. By contrast, pulling major Gs to achieve the coveted 180-degree T2T (tail-to-tail) position will usually make you too slow to get away before the bandit catches up and lines you up again to kill you. In other words, you need to



do something that'll put you in that magic 180-degree T2T position with lots of E to spare and that'll leave your enemy's E reserves as low as possible. Your E advantage must be sufficient enough to increase your separation distance to at least 1000 meters (the maximum effective distance of cannon).

Some tips that can help your disengage stage efforts and save you from early retirement are:

Be unpredictable: When you're defensive, the only thing in your favor is that your pursuer(s) (those on offense) must react to your maneuvers. You get to move first and your pursuers' reaction time works against them. If you can keep them guessing, it'll increase your chances of getting away. This is what's meant by doing something unexpected.

Use the vertical: Any escape maneuver you try should incorporate a vertical element (whether your vertical component is up or down depends on your E state), and your vertical maneuvers should contain a horizontal element as well. In other words, if you have sufficient E to pull up, don't just loop straight over. Roll out of your climb to the left or right. The same goes for dives. Adding a roll (of any angle up to 360 degrees) or consecutive rolls will make it harder for your opponents to predict your next direction. If they can't predict your next move, they won't be able to figure out the amount of deflection required to shoot at you with any success unless they're just extremely lucky.

Jink: Jinking is moving *out of plane* (out of level) with the enemy when he shoots at you. As your opponent gets lined up for a shot, roll your aircraft some random amount and pull back on the stick. This moves you out of plane with your opponent and forces the opponent to line up another shot. Naturally, to be able to do this, you need to be looking out the rear view so you can wait as late as possible to jink. If you have quick reflexes, they'll help you determine which direction to jink to evade the bullets being fired at you. But if you guess wrong, you'll get pinged. Keep jinking as many times as necessary—until you can get away, the bandit runs out of ammo, or you get shot down. (Hopefully one of the former rather than the latter, of course.)

The Scissor: There are many descriptions of the Scissor, but for our Disengage stage purposes, the Scissor is a maneuver that consists of a series of turns made back and forth in an attempt to make your pursuer overshoot. Most pilots who Scissor use it only as a last resort and just weave back and forth without really watching for the opportunity to take advantage of the move. Success with the Scissor relies on timing and learning to recognize when the maneuver is working.

To begin the Scissor, make a turn in either direction. Using the Up view to spot your opponent, reverse your turn just as he appears in the Up view. Each time you reverse, the bandit should move slightly further forward in your Up view, and you'll see more of the top of his cockpit instead of the front of his plane (and guns!) as well. The further forward he moves, the closer to overshooting he gets. Then it's just a matter of timing your reverse turn so it puts him in front of you or gives you that magic 180-degree chance to get away.

Even if you're equipped with the best training, strategies, and information, in reality, disengaging the enemy may not be possible without some assistance from your opponent. The bandit usually has to screw up or let you go or you'll need some intervention from your teammates. The fancy flying that you use to dazzle everyone is intended to get your opponent to screw up. Despite what you see in the movies, there isn't any magic maneuver that will get you out of all situations every time.

The best solution is never to let yourself get into that situation in the first place. Sorry, but that's the brutal reality of air combat. But as you've probably gathered from this chapter, being well versed in the performance of your airplane, as well as that of your opponents', is highly valuable and can help you gain an edge over the enemy and make all of this a lot easier for you. For a discussion of aircraft flight performance, aircraft specifications, and game strategies, let's move on to Chapter Six, "Advanced Game Strategies."



ADVANCED GAME STRATEGIES

Fighter Ace has been described as a “simulation of a flight simulator.” As a result, you don’t need to be a flight-dynamics engineer to play it. That said, the more you know about your airplane and the airplanes you’re flying against, the better off you’ll be—especially when it comes to battle. You should also have extended knowledge of the environment in which you’re fighting.

The combination of piloting skills, knowledge of aircraft performance, and understanding of the battlefield can transform any pilot into a formidable fighter. And that’s what this chapter is all about—getting the most out of your aircraft and the Fighter Ace environment.

In order to help you achieve these goals, we’ll not only discuss the facts about aircraft-performance specifications for the various aircraft, but we’ll also go into why things happen in certain situations. Knowing the hows and whys gives you the knowledge to exploit those situations or avoid them entirely.

Last, but by no means least, we’ll discuss Fighter Ace game strategies and multiple-player tactics. After all, Fighter Ace is a multiplayer-game, and you can’t win if you don’t know how the game is played!

Pushing Performance

You may have heard the phrase “pushing the envelope.” The origin of the phrase comes from the early days of aviation and flight-testing. If we were to plot the flight performance limits of an airplane on a graph, we’d end up with a diagram that looks like a slanted square or rectangle. This box is commonly referred to as the *flight envelope*. In the simplest terms, the lines that mark the outer edges of the envelope illustrate the exact points at which an aircraft makes the transition from flying to not flying. While the airplanes in Fighter Ace have been tweaked to make them as evenly matched as possible, each airplane nonetheless has different performance capabilities.

If you can fly your airplane at its performance limits (that is, so you’re pushing the envelope), you’re able to turn tighter, fly higher, and fly faster than

Tip: *Although knowing certain skills and strategies helps you fly "out on the edge," it's generally more advantageous to learn the specifics about your enemies' limitations in comparison to your own. This helps you decide on a basic plan of attack by exploiting your strengths against your opponents' weaknesses.*

your (hopefully less-skilled) opponent. This is an obvious advantage against a plane of equal skills, but don't underestimate its capability to give you the edge against even a higher-performance plane. If you're flying a lower-performing airplane than your opponent, being able to fly at the outer edge of the flight envelope is sometimes the only way to even out the playing field.

Out on the Edge

Due to a bit of *homogenization* of Fighter Ace aircraft, in the interest of gameplay, and the fact that *living* online-only products are updated frequently, it'd be pointless to quote exact performance numbers for the Fighter Ace airplanes because those numbers might change at any time. Although this may sound fuzzy to experienced pilots (and suggest a boon for new pilots—no performance numbers to memorize!), the way to get around all of this is to do what any aircraft manufacturer or air corps has to do in the real world—hire a test pilot.

Granted, becoming a provisional test pilot was probably something you never thought you'd be doing when you first signed up for Fighter Ace, but quite frankly, if you ever wanted to fine-tune your piloting skills out on the edge, there's no better way to learn. In order to understand how this fine-tuning works, we need to break down the process into three steps:

- Learn the limits.
- Learn how to stay within the limits.
- Learn to recover if you go beyond the limits.

When learning to *ride the edge*, the key is learning where the limits are. Fighter Ace's Realistic physics mode makes this easy for you to recognize because it models buffeting and spins. The buffeting communicates *maximum* limit warnings, and stalls and spins tell you *when* you crossed the limit. (Note that stalls and spins are only available when flying with the Realistic physics mode.)



Stalls

Learning how to recover from going slightly *over* the edge of the performance limits is critical for survival because once you're over the edge, you've transitioned into not flying. And as some pilots put it, "if your airplane ain't flyin', you're dyin'." So before we discuss recovery, here's what happens when you cross the limit.

The majority of flight-performance problems are caused by stalled flying surfaces. Contrary to what many pilots believe, stalls aren't caused by airspeed that's too low. They're really caused by exceeding the critical angle of attack—the angle between the wing-chord line and the direction of the relative wind.

What makes low airspeed *seem* like a stall is the fact that low airspeeds generate less lift. When the pilot tries to compensate for the loss of lift (which he can recognize by loss of altitude) by using more elevator, the wing exceeds the critical angle of attack for that airspeed as the nose pitches upward.

Without pilot intervention to cause a stall, an airplane recovers from flying too slow by lowering its nose all by itself. While the critical angle of attack is different with different wing designs, an airplane can be stalled at any airspeed or at any flight attitude, altitude, or power setting. This might sound intimidating, but the good news is that stalls are pilot-induced. In other words, *you* have control over them. Taking it easy on the elevator in the Realistic arenas can prevent you from stalling by keeping you away from the critical angle of attack. The downside to this is that it makes for sloppy and wide turns. Tighter turns increase your maneuverability and survival rate (and probably your kill ratio as well).

There are several classifications of stalls, but you recover from all of them the same way. When you feel the airplane buffet or hear the audio stall warning (a rattling sound), release backpressure on the stick. If you're in a steep bank, neutralize your ailerons and return to level flight. If you're at a low power setting, you should increase power as well.

Spins

If you fail to recover from a stall or let it continue by ignoring the stall signals, you can enter a spin. Spins are the results of one wing producing lift while the other is stalled. In order to spin, an airplane must be stalled; if you never stall, you'll never spin. So obviously, the best solution to beating a spin is never to get into one in the first place. Avoid stalls and subsequent spins by being smooth and easy on the stick and never exceeding the critical angle of attack.

But if you do need to recover from a spin, first neutralize your ailerons, and then apply full-down elevator (or full-up elevator if you're in an inverted spin). Next, apply full rudder in the direction opposite to the spin. Sometimes it's difficult to recognize which way the spin is going, but check your other views to help get your bearings straight.

Pressing the wrong rudder pedal increases your spin—that's why it's so important to decipher the spin direction correctly. Keep correcting with the rudder to keep the nose steady. You'll be tempted to apply aileron to stop the spin, but don't do it! It only makes your recovery longer. Hold full-down elevator until the rotation stops, and then slowly ease the elevator back to neutral. The nose of your airplane will rise by itself because of the increase in airspeed. Of course this procedure works only if you have enough altitude and positive-rudder control.

Two other points about spins you should be aware of are:

- You can't recover from every spin.
- You might recover from a spin quicker in some aircraft if you reduce throttle during the recovery. Reducing throttle as a regular procedure for spin correction decreases your loss of altitude as well.

Flying the Line

Now that we've taken a look at what the edge looks like and how to come back if you cross over it, let's talk about how to stay on the edge. The benefits are being able to fly as close to the performance edge as possible—without crossing over—are easy to understand once you accept the fact that once you cross the edge, recovery usually consumes any gains that you might have made.

To fly out on the edge, you should fly until your plane begins buffeting, and then let off. From there, it's just a matter of trying to keep it as close as possible to that point. Of course, this is easier to say than to do because it requires precision control and feel. But then again, if it were easy, everybody'd be doing it. Including your opponents.

Performance Factors

Aircraft performance in Fighter Ace can be broken down into two separate factors. (Real airplanes are much more complicated, but the designers of Fighter Ace have simplified details to make the game more accessible to a



larger audience.) Specifically, we're referring to your airplane's power output and turning capabilities. Let's take a look at each of these factors and how they affect aircraft performance.

8423f T:WEP D:0%

Your Throttle Position Indicator displays "WEP" when you're using War Emergency Power.

Power Output

Of course, when we talk about "output," we're talking about engine horsepower. The more powerful the engine pulling your airplane, the higher your top speed, the faster you can accelerate and climb, and the better you're able to retain your E in a turning fight. We've already discussed the finer points of energy management, but Fighter Ace requires power-management skills as well. There are two engine power concepts to recognize.

WEP (War Emergency Power)

WEP was a special addition to engines of some of the airplanes in WWII. In Fighter Ace, there are two types of WEP modeled—Type 1 and Type 2.

Type 1 uses the injection of some sort of expendable material such as nitrous oxide, alcohol, or a water and alcohol mix to boost performance. Type 2 uses a mechanical device such as superchargers or turbochargers. Both types of WEP have a limited duration, and the Type 2 replenishes itself after a rest period, but once the Type 1 WEP is gone, it's gone for good. You know you're using War Emergency Power when your Throttle Position Indicator displays "WEP."

Tip: *Despite its name, you don't need to reserve War Emergency Power for a crisis, since many individual conflicts are of short duration.*

Fighter Ace Aircraft WEP Specifications

Aircraft	Duration	WEP
Bf-109G-6 and K-4	600 seconds	Type 1 (water injection)
Fw-190A-8 and D-9	300 seconds	Type 1 (nitrous oxide injection)
La-5 and 7	90 seconds	Type 2
P-38J and L	300 seconds	Type 2
P-51B and D	180 seconds	Type 2

Tip: Although very little fighting in *Fighter Ace* takes place at altitudes as high as our example, don't forget to explore the performance differentials that altitude changes bring.

compression that's obtainable decreases as the air thins. While supercharged, turbocharged, and turbine aircraft can delay this thin air problem by enabling an engine to produce an increase in power compared to its normally aspirated cousins (this explains why most flight-performance envelopes are slanted to the right near the top), none totally eliminates the effect. By delaying the loss of engine power, you're able to make gains on the thinning air.

Thinner air also translates into less drag, which in turn results in higher airspeeds. As your altitude increases, so does your airspeed. The increase in airspeed can yield an advantage. Unfortunately, like most good things, there's a limit (although it's not as obvious in jet turbines until you reach very high altitudes).

This is easy to illustrate with high-performance, prop-driven aircraft. *Fighter Ace*'s current Spit XIV model will do 393 KIAS at 10,000 feet, 415 KIAS at 20,000 feet, and 427 KIAS at 30,000 feet in level flight. However, at 35,000 feet, maximum speed at the same exact power setting drops to 370 KIAS. The benefits of dogfighting in a Spit XIV at 30,000 feet become especially obvious if your opponents' aircraft doesn't perform as well at this altitude.

Engine Torque Effects

Although engine torque effects aren't generally thought of as a performance enhancement, they are related to engine power output and can be used to extract an advantage. But maybe we should back up a bit. Torque effect can be explained through Newton's Second Law of Motion, roughly, that for every action, there is an equal and opposite reaction.

What this means is that when the engine on a high-powered prop fighter in *Fighter Ace* turns its propeller in one direction, it causes the airplane to want to roll in the opposite direction. This effect is most prominent during the

Note: Not all engines modeled in *Fighter Ace* rotate in the same direction.

High Altitude Performance

As you fly higher into the atmosphere, the air becomes thinner and the performance of a normally aspirated aircraft engine decreases. This is because the maximum-engine

application and reduction of power (throttle), such as a low power to high power throttle change while at a low



airspeed (as during takeoff or steep climbs near minimum stall speed), and from high power to low power at high airspeeds. Naturally the latter results in a roll in the opposite direction than the power-on torque effect roll.

If you understand this principle, you can use torque effect to gain a slight advantage over your opponent with the application and reduction of power because you can increase your roll rate under the right conditions. However, remember that numerically even (in terms of units) multi-engine airplanes such as the P-38 series reduce the effect of engine torque on their airframes.

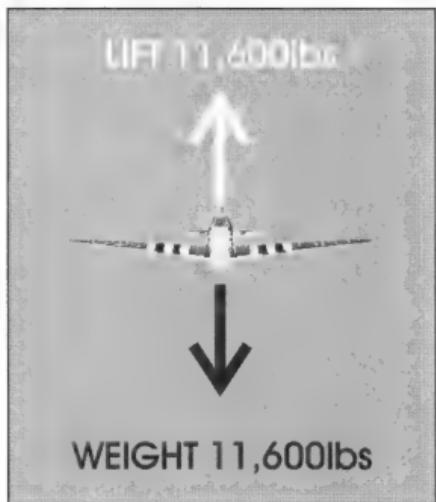
On the other hand, engine torque effects are not always welcome, such as when you're trying to stay on the runway during takeoff. The way to deal with the effect is to apply opposite rudder with enough opposite aileron to keep your wings more or less level. You should recognize this technique by now because it's very similar to the forward slip we discussed in the last chapter.

Turn Performance

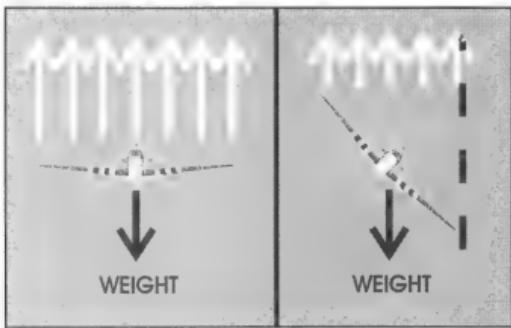
One of the most important things you'll ever do in *Fighter Ace* is turn your airplane. Generally, there are two types of turns—precision turns and non-precision turns. A precision turn is one that's made with very high regard to bank and rate. A non-precision turn is one that's made with little or no regard to bank or rate. Non-precision turns range from the leisurely, wallowing turns used by sightseeing pilots to the "bank and yank" desperation turns used to evade a bandit's bullets.

Although the precision turn is commonly thought of as the standard rate turn used in instrument flight; in the air-combat world, the combat turn is also a precision turn.

When it comes to turning, lift is very important. In order to fly straight



To fly level, a wing must generate 1G of lift to offset the airplane's weight.



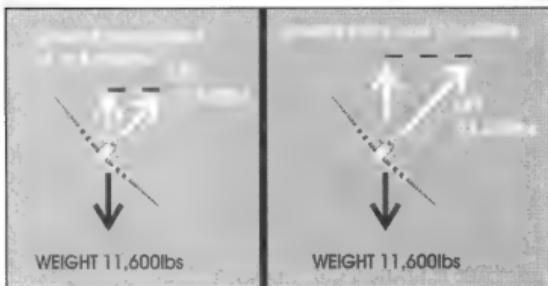
When an airplane is banking (right) instead of flying level (left), only a small percentage of the wing can generate lift to counteract gravity.

and level, a wing needs to generate 1G of lift to offset the weight of the airplane. Although rudder (only) turns are possible, the airplane must bank in order to turn regardless of what control surface provides the banking action. In most cases, the steeper you bank the airplane, the quicker you'll turn. But when you bank an airplane, only a small percentage of the wing is able to generate lift in the required direction (against

gravity) to offset the weight of the airplane. This results in a loss of altitude.

To counter the loss in altitude, you must increase lift by increasing the AOA (pulling back on the elevator). An airplane in a 60-degree bank requires double the lift to maintain a level turn (the cosine of 60 degrees is 0.500, or 50 percent). Although you'll probably never make level turns in combat, you must realize that lift is turning the airplane, not the ailerons or rudder. Turn performance is directly tied to lift performance. To further complicate things, certain variables affect lift, which in turn—pardon the pun—directly affects your turn performance.

Lift is a critical component for turning, and lift generally increases with airspeed. But higher airspeeds increase turn radii— which decreases your turn rate. This is because centrifugal force begins to exceed the lift capabilities of the wing, just as when you drive a car very fast into a turn.



Maintaining altitude in a 60-degree bank requires double the lift of level flight.



The radius of a turn in an airplane at a high speed is larger than it is for the same turn at a slower speed because the effects of centrifugal force become greater than the centripetal (holding force) that's created by the cross component of lift when the airplane is banked.

Turn rate is the time it takes to move the nose (aviation conventions reference the nose) of an aircraft a certain number of degrees. It's natural to think that by going faster, you increase your rate of turn because your lift increases from the additional airspeed. But when you consider the maximum lift curves, going too fast also results in a turn rate decrease because of the increase in centrifugal force.

Even without considering the engine power losses due to increases in altitude, altitude also affects lift. Basically, the higher you fly, the less dense the air becomes; the less dense the air, the less lift results, which decreases turn performance. Under such conditions, you must fly faster to get the same number of air molecules under your wing in order to achieve the same turning rate you'd have at a lower altitude. Unfortunately, as we've discussed, you might not have the power to increase your airspeed enough to make this possible.

When flying at a low airspeed, your flight controls begin to feel "mushy" and become less effective. That's because low airspeed causes a decrease in airflow over the control surfaces. As your airflow decreases, more control deflection is required to divert the same volume of air. On the other hand, as your airspeed increases, the amount of control input required for maneuvering decreases.

Unfortunately, if you fly in the Realistic Physics flight model, this trend continues only to a point. As you approach the other end of the flight envelope, your controls become stiffer and less effective again. Depending on the aircraft, you might actually lose all control (that is, if your aircraft doesn't break apart first) in an effect known as *compressibility*.

Elevator Trim

In the Realistic arenas, you must deal with elevator trim. Although the real-life counterpart is a bit more complicated, as far as Fighter Ace is concerned, you really need to understand only a couple of things. First, you can think of the automatic elevator trim (press T to activate) as a kind of joystick centering feature for the elevator axis of your joystick. Every time you activate this feature, your airplane remains at that flight pitch—which brings us to point number two. This new trim setting is valid only until your airspeed changes.

In the real world, your horizontal stabilizer (the little wing in the back of the airplane) helps maintain the airplane's pitch either by producing positive lift (raising the tail) or, more commonly, producing negative lift (lowering the tail). As we've seen, increases and decreases in airspeed affect the amount of lift a wing produces. Because both the main wing and the horizontal stabilizer (which is also a wing) aren't exactly the same aerodynamically, they don't react to increases and decreases in airspeed and lift at the same rate. This causes the pitch changes that require elevator control input at different speeds. Now you see why elevator trim must be "re-centered," if you will, when your airspeed changes.

Cornering Speed

Okay, we know that turn rates decrease and turn radii increase with airspeed. As combat pilots, we want maximum turning performance. This means you're after maximum turn rate at the minimum turn radius. Because

Tip: *It may take diving turns to achieve corner velocities.*

turn radii increase with speed, we can conclude that maximum turn rate can be found at some minimum airspeed. This magic airspeed number is known as *cornering speed* or *cornering velocity*.

Although Fighter Ace's "virtual" aircraft do not perform exactly as their real life counterparts, studying the corner velocities of the real aircraft can lend some general insight about where you need to be. This data can also be useful for comparisons between aircraft models as well. Be aware that the velocities listed are for 12,000'. Because most battles in Fighter Ace tend to take place at a lower altitude, these numbers need to be interpolated a bit as well. As a general rule of thumb, most cornering velocities decrease with altitude in this low altitude range.

Real Aircraft Cornering Velocities (KIAS at 12,000 feet)

Aircraft	Velocity
P-38	226
Fw-190	218
P-51	206
Spitfire IX	196
Bf-109/Yak-9	193



The Flap about Flaps

It takes lift to make an airplane fly. But to a limited extent, a pilot can generate additional lift by increasing the AOA or adding flaps by pressing F. (Press D to retract flaps.)

Increased lift can, as we've just seen, increase turn performance. Although some airplanes have multiple flap settings that include Battle and Maneuver settings, turning benefits can sometimes be obtained by using the Takeoff or Landing settings if the combat flap settings aren't available.

The unfortunate by-product of lift is drag, and increased lift equates with increased drag. So the use of flaps slows you down. While this can be useful for executing tight turns or landing, make sure your flaps are retracted after takeoff, when you're flying straight and level, and when you're trying to escape from a bandit.

Note: Your flaps can be damaged if they're deployed at too high an airspeed in the Realistic arenas.

Fighter Ace Aircraft Specifications

The aircraft specifications that follow in this section contain information about the performance capabilities of the aircraft you'll fly and fly against. Knowing the performance specifications of aircraft allows you to fly the aircraft at its peak abilities. It's important to know the strengths and weaknesses of your plane so you can adjust your flying tactics accordingly.

Fighter Comparisons

Just as with their real-life counterparts, every aircraft in Fighter Ace has its own strengths and weaknesses (known as Disparity of Performance). But to maintain play balance, these differences are minimized. Although historical differences are reflected as much as possible, Fighter Ace's airplanes were adjusted so that they fly more or less the same. In other words, the *characteristics* of each aircraft have been duplicated as much as possible while the *advantages* of these differences is minimized. As a result, no single aircraft has a decisive advantage over the others. This allows

Tip: There's no need to memorize these numbers at all altitudes. Increments of 5000 feet up to 20,000 or 30,000 feet are sufficient since this is where most air battles take place. Some pilots take these numbers and calculate an average and use that instead.

players to find the type of airplane that best suits their flying styles without sacrificing any competitive ability.

Regardless, every Fighter Ace pilot must learn the assets and liabilities of nearly every plane in the sim and appreciate how these various planes behave in combat. The concept is to try to incorporate your plane's *virtues* against any enemy planes' *vices*. The plan is quite simple:

- Out-climb the slower climbers.
- Out-accelerate the slower aircraft.
- Out-turn the zoomers.
- Out-zoom the TnB'ers.
- Out-gun those with weak durability.

As you know, some planes are much better suited to one style of fighting over another. The Fw-190s are good BnZ-type planes. They dive well, have lethal guns and—probably most importantly—they're not strong turners. BnZ fighters are fast, handle well at high speeds, and regain altitude well in the zoom. This can be from either low drag or a powerful engine.

Conversely, a Yak-9 turns well, but is practically worthless as a BnZ fighter because it isn't very fast and its guns are weak. A TnB fighter needs to be able to turn quickly, but a good climb rate can only help you. It's also to your advantage if your fighter has a relatively low stall speed and gives you plenty of feedback if it's going to stall (while you're in Realistic mode). Some aircraft just snap into a stall with little or no warning, making them very difficult to fly when pushing the envelope. By contrast, some planes, such as the Spitfire XIV, can be flown well either way.



Bf-109G-6

Wingspan: 9.92m (32 ft.)

Length: 8.85m (29 ft.)

Height: 2.50m (8 ft.)

Weight: 2253 kg
(4968 lb.)

Engine: Daimler Benz
DB605A

Output: 1475 hp.

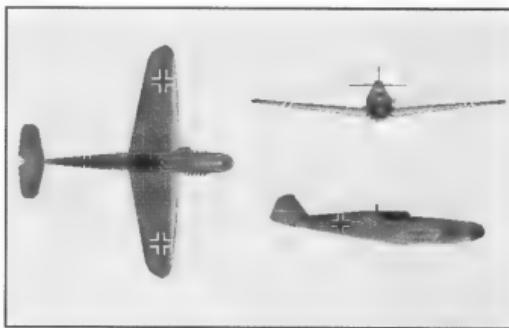
Guns: 1x30 mm cannon
in propeller and
2x13mm machine
guns in cowling.

Roll Rate: Average

Turn Rate: Average

Speed: Average

Sources: 1,2,4,10,11,12



The Bf-109G-6.

Durability: Good

Firepower: Average

Bf-109K-4

Wingspan: 9.97m (32 ft.)

Length: 8.85m (29 ft.)

Height: 2.50m (8 ft.)

Weight: 2380 kg
(5250 lb.)

Engine: Daimler Benz
DB605ASCM

Output: 1550hp.

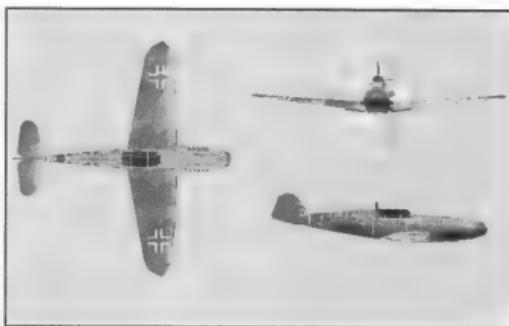
Guns: 1x20 mm cannon
in propeller and
2x13mm machine
guns in cowling

Roll Rate: Average

Turn Rate: Average

Durability: Good

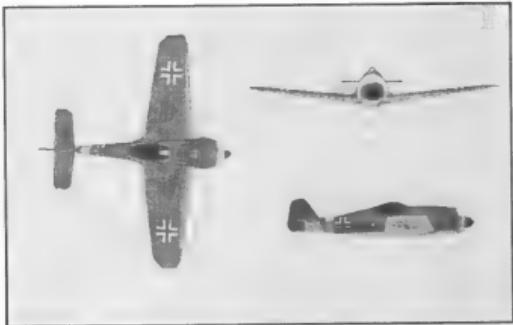
Firepower: Average



The Bf-109K-4.

Speed: Excellent

Sources: 1,2,4,10,11,12

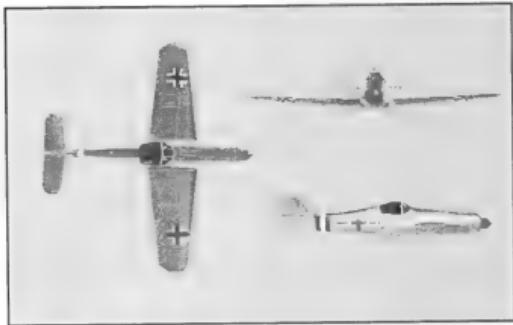


The Fw-190A-8.

Roll Rate: Excellent
Turn Rate: Poor
Durability: Good
Speed: Poor

Fw-190A-8

Wingspan: 10.54 m.
(34 ft. 5.5 in.)
Length: 8.83 m. (29 ft.)
Height: 3.99 m.
(13 ft. 1 in.)
Weight: 3200 kg.
(7055 lb.)
Engine: BMW 801D-2
Output: 1,700 hp.
Guns: 2x13mm MG131
above engine,
2x20mm MG151/20
in wings & 2x20mm
MG151/20 in
outer wings
Firepower: Excellent
Sources: 1,2,4,10,11,12



The Fw-190D-9.

Roll Rate: Excellent
Durability: Good
Firepower: Average

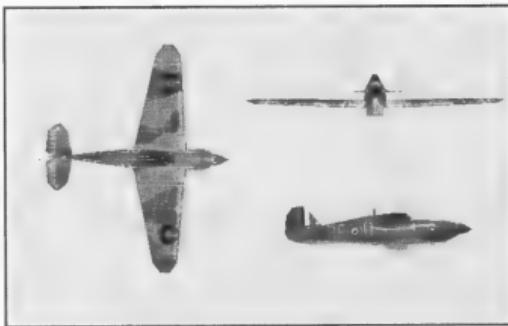
Fw-190D-9

Wingspan: 10.54 m.
(34 ft. 5.5 in.)
Length: 8.83 m. (29 ft.)
Height: 3.99 m.
(13 ft. 1 in.)
Gross Weight: 3200 kg.
(7055 lb.)
Engine: Junkers
Jumo 213A-1
Output: 1776 hp.
Guns: 2x13mm MG131
above engine,
2x20mm
MG151/20 in wings
Turn Rate: Average
Speed: Excellent
Sources: 1,2,4,9,10



Hurricane IIA

Wingspan: 12.192m
(40 ft.)
Length: 9.75m (32 ft.)
Height: 3.99m
(13 ft. 1 in.)
Gross Weight: 2480kg
(5467 lb.)
Engine: Rolls-Royce
Merlin XX V-12
liquid cooled
Output: 1280hp
Guns: 8 wing-mounted .303 Browning
Machine Guns
Roll Rate: Poor
Durability: Average
Firepower: Good



The Hurricane IIA.

Turn Rate: Good
Speed: Poor
Sources: 1,2,4,13

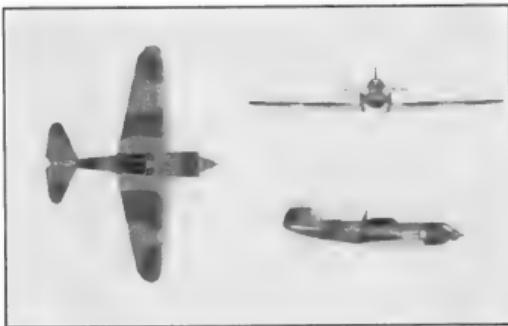
Hurricane IIC

Wingspan: 12.192m
(40 ft.)
Length: 9.75m (32 ft.)
Height: 3.99m
(13 ft. 1 in.)
Gross Weight: 2567 kg
(5658 lb.)
Engine: Rolls-Royce
Merlin XX V-12
liquid cooled
Output: 1280hp
Guns: Cannons
Four wing
mounted 20mm Hispano
Turn Rate: Good
Speed: Poor
Sources: 1,2,4,13



The Hurricane IIC.

Roll Rate: Poor
Durability: Average
Firepower: Excellent



The La-5.

Durability: Poor

Firepower: Average

La-5

Wingspan: 9.8 m.

(32 ft. 2 in.)

Length: 8.67 m.

(27 ft. 11 in.)

Height: 2.54 m.

(9 ft. 3 in.)

Weight: 2605 kg.

(5743 lb.)

Engine: ASh-82FN
radial engine.

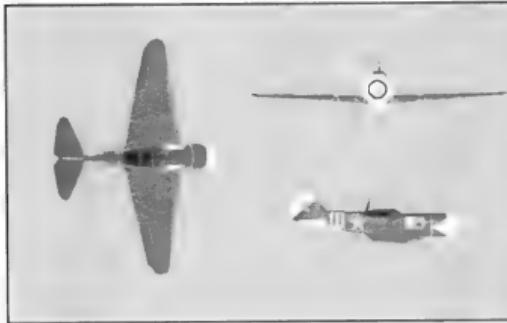
Horsepower: 1630 hp.

Guns: 2x20 mm cannons.

Turn Rate: Good

Speed: Average

Sources: 1,6,7,8



The La-7.

Turn Rate: Good

Speed: Average

Sources: 1,6,7,8

La-7

Wingspan: 9.8 m.

(32 ft. 2 in.)

Length: 8.67 m.

(27 ft. 11 in.)

Height: 2.54 m.

(9 ft. 3 in.)

Weight: 2600 kg.

(5732 lb.)

Engine: ASh-82
radial engine

Horsepower: 1823 hp.

Guns: 3x20 mm cannons

Roll Rate: Average

Durability: Poor

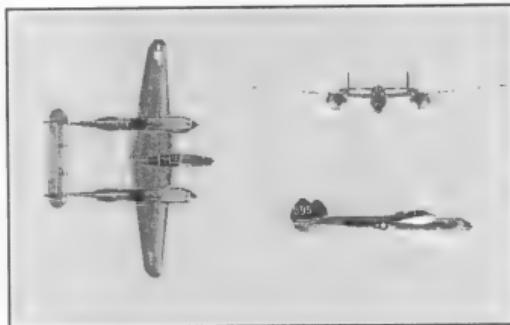
Firepower: Good



P-38J Lightning

Wingspan: 52ft.
(15.9 m.)
Length: 37.72 ft. (11.5 m.)
Height: 9.84 ft. (3.0 m.)
Engine: 2xAllison V-1710-89
Horsepower: 1,425 hp each
Guns: 1x20 mm cannon, 4x.5 inch Browning machine guns

Roll Rate: Average
Durability: Excellent
Firepower: Good



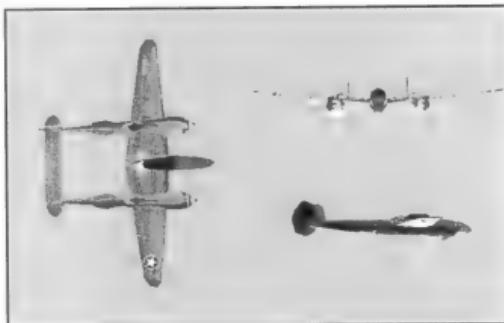
The P-38J Lightning.

Turn Rate: Poor
Speed: Good
Sources: 1,2,4

P-38L Lightning

Wingspan: 52ft.
(15.9 m.)
Length: 37.72 ft.
(11.5 m.)
Height: 9.84 ft. (3.0 m.)
Weight: 12,780 lb.
(5797 kg.)
Engine: 2xAllison V-1710-111
Horsepower: 1,600 hp each

Guns: 1x20 mm cannon, 4x.5 inch Browning machine guns
Turn Rate: Poor
Speed: Good
Sources: 1,2,4



The P-38L Lightning.

Roll Rate: Excellent
Durability: Excellent
Firepower: Good

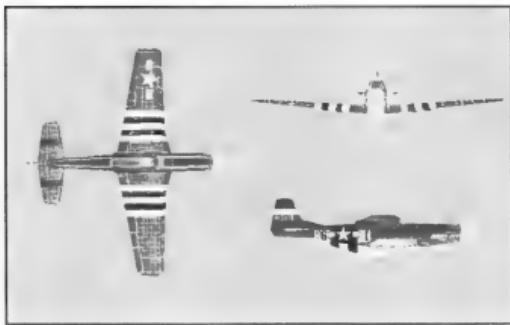


The P-51B Mustang.

Speed: Average
Sources: 1,2,3,4,5

P-51B Mustang

Wingspan: 37 ft. .5 in.
(11.39 m.)
Length: 32 ft. 3.25 in.
(9.85 m.)
Height: 13 ft. 8 in.
(4.16m.)
Engine: Packard-built
Merlin V-1650-3
Weight: 7010 lb.
Horsepower: 1400 hp
Guns: 4 x .5 inch Browning machine guns
Roll Rate: Good
Turn Rate: Average
Durability: Good
Firepower: Average



The P-51D Mustang.

Roll Rate: Good
Durability: Good
Firepower: Average

P-51D Mustang

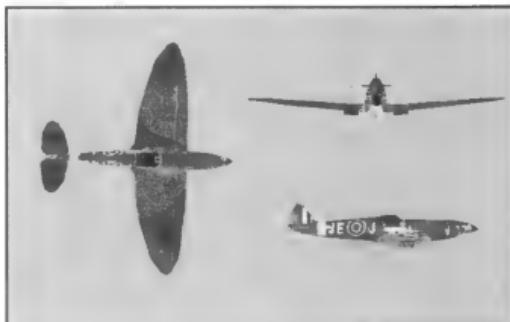
Wingspan: 37 ft. .5 in.
(11.39 m.)
Length: 32 ft. 3.25 in.
(9.85 m.)
Height: 13 ft. 8 in.
(4.16m.)
Engine: Packard-built
Merlin V-1650-7
Weight: 7635 lb.
Horsepower: 1510 hp
Guns: 6 x .5 inch Browning machine guns

Turn Rate: Good
Speed: Excellent
Sources: 1,2,3,4,5



Spitfire IX

Wingspan: 11.22 m
(36 ft. 10 in.)
Length: 9.46 m (31 ft.)
Height: 3.85 m (12 ft. 7 in.)
Gross Weight: 2630 kg
(5800 lbs.)
Engine: Rolls-Royce
Merlin 63
Output: 1,650 hp.
Guns: 2x20mm Hispano
cannons, 4x0.303
inch Browning
machine guns.
Roll Rate: Good
Durability: Good
Firepower: Average

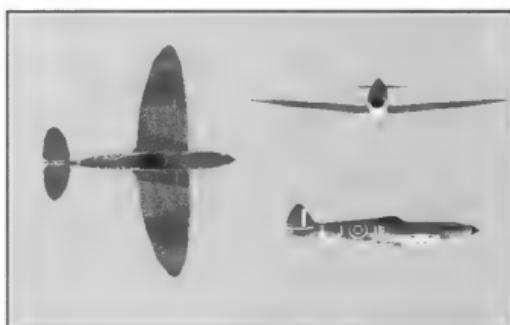


The Spitfire IX.

Turn Rate: Good
Speed: Average
Sources: 1,2,4,14,15

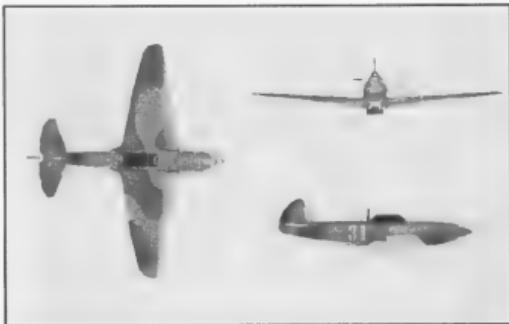
Spitfire XIV

Wingspan: 11.22 m
(36 ft. 10 in.)
Length: 9.95 m
(32 ft. 8 in.)
Height: 3.87 m
(12 ft. 7 in.)
Gross Weight: 2,983 kg
(6,576 lbs.)
Engine: Rolls-Royce
Griffon 65
Output: 2035 hp.
Guns: 2x20mm
Hispano cannons,
2x0.5 in. Browning machine guns
Speed: Excellent
Durability: Good
Sources: 1,2,4,14,15



The Spitfire XIV.

Turn Rate: Good
Roll Rate: Good
Firepower: Good



The Yak-3.

Durability: Poor

Firepower: Poor

Yak-3

Wingspan: 9.74 m.
(31.95 ft.)

Length: 8.55 m. (28.05 ft.)

Height: 3.0 m. (9.84 ft.)

Weight: 2,770 kg.

(6106.80 lb.)

Engine: Klimov
VK-105PF-3

Output: 1360 hp.

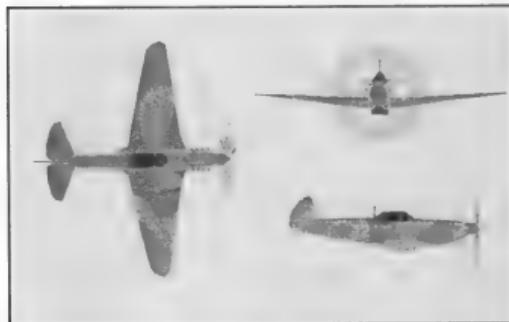
Guns: 1x20 mm cannon
and 2x12.7mm mg.

Roll Rate: Average

Turn Rate: Good

Speed: Average

Sources: 1,6,7,8



The Yak-9.

Roll Rate: Average

Durability: Poor

Firepower: Poor

Yak-9

Wingspan: 9.2 m.
(30 ft. 2 in.)

Length: 8.5 m.
(27 ft. 10 in.)

Height: 2.42 m.
(7 ft. 11 in.)

Weight: 2105 kg.
(4641 lb.)

Engine: Klimov
VK-105PF

Output: 1300 hp.

Guns: 1x20 mm cannon
and 2x12.7mm mg.

Turn Rate: Excellent

Speed: Average

Sources: 1,6,7,8



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Weaponry

Being able to out-turn any aircraft in the virtual skies of *Fighter Ace* is only part of the equation. If your airplane is equipped only with BB guns or very few rounds, it will be very difficult to capitalize on your flight performance advantage. For weaponry specifications listed by aircraft, check out this chart:

Fighter Ace Aircraft Armament

Plane	Nose MGs	Wings MGs	Nose Cannon	Wing Cannon	Nose MGs	Wing MGs	Nose Cn. Ammo	Wing Cn. Ammo
Bf-109G-6	2 x 13mm		1 x 30mm				300	60
Bf-109K-4	2x 13mm		1x 20mm					
Fw-190A8	2 x 13mm			4 x 20mm				
Fw-190D9	2 x 13mm			2 x 20mm	475			250
Hurricane IIA			12x .303					
Hurricane IIC					4 x 20mm			
La-5			2 x 20mm					
La-7			3 x 20mm					
P-38J	4 x 0.5		1 x 20mm					
P-38L	4 x 0.5		1 x 20mm					
P-51B		4 x 0.5						
P-51D		6 x 0.5				2x400, 4x270		
Spitfire IX		4 x .303		2 x 20mm				
Spitfire XIV		2 x 0.5		2 x 20mm		350		120
Yak-3	2 x 12.7mm		1 x 20mm					
Yak-9	2 x 12.7mm		1 x 20mm		250		120	



Fighter Ace Game Strategies

Although Fighter Ace is based on historical and real-world information, it's still a game that's been enhanced for entertaining game play. Now that we've covered all the information crucial to your success, let's discuss the how these enhancements affect each particular Fighter Ace game.

Free-for-All Game Strategies

The Free-for-All game is supposed to be every pilot for himself. But making assumptions can get you into big trouble. Here are some tips and pointers:

- Watch your back.
- Assume that you're on your own and that you'll be attacked from behind just when you're lining up someone for a kill.
- Use your radar often when engaged in a battle, if for no other reason than it lets you know when someone else has joined your battle.
- Watch for players working in teams. Yes, Free-for-All is supposed to be every man for himself, but you'll see this happening. You can recognize these players by their radio messages. Exchanges such as "OTW," and "where are you?" are tip-offs.
- In Free-for-Alls, each pilot begins outside his or her chosen airplane's camp airfield at various altitudes.
- Landing carries no benefits unless your damage is 80 percent or higher. Target and kill your biggest threat first. Decide who the biggest threat is by the relative E states and the particular enemy aircraft.
- The most dangerous enemy is the one who has an altitude advantage over you. If everyone is below you, the most dangerous is the one whose altitude is closest to yours.

Team Combat Game Strategies

Unlike the Free-for-All game, the Team Combat pits camp against camp. This environment is designed for team tactics, but before we get to those, we should discuss some strategies to help you thrive regardless of whether you have the cooperation of your teammate(s) or not.

- After taking off, circle around your airfield so you can use the protection of friendly Ack while you're grabbing E.

Fighter Ace Ethics

The ideals of air-combat chivalry are as old as air combat itself. But somehow when the terms war and ethics are put together, we have a contradiction. While some believe "war is war—I'll do anything to win," others feel such sentiments are barbaric, and therefore unjustified. Whatever your feelings on the matter, Fighter Ace ethics exist, but they're neither universally accepted nor followed.

Certain actions such as vulching helpless enemy airplanes taking off from their airport; pressing Escape when you're low on E or damaged; flying as part of a team in Free-for-All games; and intentionally crashing when damaged to avoid a down penalty (recall crash penalties are 1/2 that of a down) are considered displays of poor sportsmanship by some—yet you'll see these practices in practically every game. The explanations given for such acts seem to stem from the fact that no written rules or game controls prohibit any of them. So who's right? Well, you need to answer that question based on your own beliefs. But at the same time there's nothing ethically wrong with the "if the game let's me do it, it must be okay" mindset, although some acts do seem to ruin the spirit of the game. In that light, if you're ruthlessly into increasing your kill totals, more power to ya. If you're into good air-combat battles, you might want to consider cutting even the enemy some slack. Besides, if a situation gets too bad, you can always duck into a private arena and keep out the undesirables.

The subject of stealing kills is another gray area. Of course, just as with other such topics, it's all really a matter of perception. Although the great majority of pilots welcome assistance and will often thank you for your help, you may encounter someone who says you "stole their kill." Who's right? It's another tough call. Generally, if the enemy outnumbers the friendlies in the particular battle, dive in and don't worry about it.

But when it comes to one-on-one fights, wait a minute and observe the battle unless you've been in contact with the friendly pilot involved. If the friendly doesn't polish off the enemy within that time, or if the enemy looks as if he or she has the upper hand, you can be pretty sure that the battle isn't going exactly as your teammate would like. Then—and only then—should you crash their little party.

One other thing to be prepared for online are taunts from the enemy. These understandably can make new pilots uncomfortable. Don't sweat them! Although they might seem like personal attacks at first, they're not, and they're always kept clean (the Zone won't allow anything less). Taunts are intended to upset you into making a mistake just like trash-talk is used in sports to get opponents rattled and angry. For example, if you're extending in a Mustang after BnZ attack run, a frustrated Yak driver may call you a "Runstang." Naturally, the enemy's trying to get you to turn around early because he thinks you've bled enough E for him to shoot you on your next pass.

Conversely, the same tactic is often used when the enemy doesn't want you to come back (the enemy may be out of E or low on ammo). So be aware of the difference. Once you understand the sentiments and the psychology behind taunts, you'll find them a lot easier to take. In fact, armed with the knowledge of what taunts are really all about, you might even find them amusing.



- Fly with a group of Friendlies there's safety in numbers.
- Guard your air base, since players might be shot down during takeoff.
- Without protection, new recruits can be shot down before they can get off the ground.
- Fly with a teammate and use wingman tactics.
- Don't assume that Ack will cover you during landing. A good enemy pilot can fly under Ack and nail you when you're vulnerable.

Teammate Tactics

Teammate is the 90's term replacing the concept of a *wingman*. Although teammate generally refers to anyone that belongs to your camp, wingman infers a more personal relationship. A wingman—or rather *your* wingman—is responsible for your safety and success, just as you're responsible for his or hers. While this definition of responsibilities can describe any teammate, a wingman more or less remains devoted to a single pilot for a period of time.

So these Teammate, or Wingman Tactics are just what the name suggests—tactics you and your flight buddy use to beat the enemy into submission. The concept behind the basic two-against-one tactic is very simple: one forces the bandit in order to give the other a tail shot. The advantage that two players have over a single opponent is that the single bandit can defend against only one problem at a time, namely E state, plane disparity, or relative vector. This leaves the bandit open to attack because the enemy pilot must ignore one of you. The two general ways to force a bandit into this position are by using the Drag and the Bracket.

The Drag

For Drag, your teammate has a bandit on his tail so you slip onto the bandit's tail and kill him or her. This works because the bandit fixates on shooting down your teammate and doesn't realize that you're moving in behind for the kill.

The Drag tactic has three variations:

Drag and Bag: This variation of the Drag baits and drags the enemy into a trap composed of converging friendlies so the bandit suddenly finds himself outnumbered. The main difference of the

Drag and Bag (DnB) from the Drag is that the DnB usually takes place in a long horizontal chase, whereas the Drag

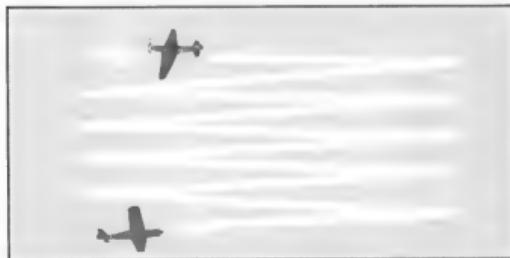
Tip: *The Drag is an effective defensive tactic as well. Dragging a bandit over friendly Ack can clear your six.*



The Drag and Bag baits the enemy into a situation where he suddenly finds himself outnumbered.



The Drag allows you to slip behind the bandit for the kill while he's preoccupied with shooting down your teammate.



The Rope-a-Dope can also be used successfully by a single pilot to lure the bandit into expending his E.

usually takes place during a turning fight.

Rope-a-Dope: The concept behind the Rope-a-Dope (RaD) is for you to lure the bandit into expending his E by initializing a climbing turn. Then you or your teammate kills the bandit while he's most vulnerable—when his energy is low. The RaD can also be used successfully by a single pilot, but only if you have a better climbing aircraft and at least a slight E advantage over the enemy.

Waltz: The Waltz (also known as the Assisted Waltz) takes advantage of the bandit's preoccupation with you or your teammate while captivated in a stalemated turn fight. This leaves the other free pilot to BnZ while the other two do their little dance around in the wild blue. The difference between the Waltz and the standard Drag is that one pilot uses a different tactic than the TnB partner. In addition to the danger borne by the pilot playing the bait (although the bait doesn't need to be



purely defensive—just occupy the attention of the bandit), both pilots must watch out for another enemy TnB'er showing up while their E is low.

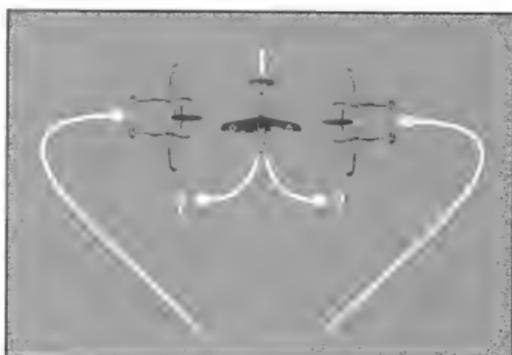
The Bracket

The second general type of Teammate Tactic is known as the Bracket. The Bracket (also known as the Pincer) places the enemy in between your two attacking fighters. The bandit must either engage one of you (which gives the other a tail shot) or ignore both of you (which allows tail shots by both of you). What makes the Bracket so effective is that it's a lose-lose situation for the bandit. The only drawback of the Bracket is that you might have to fire in the general direction of your teammate—so be careful.

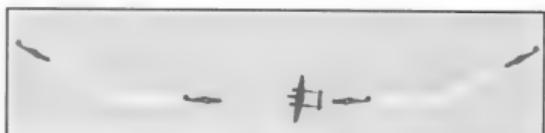
One variation of the bracket is known as the *Thatch Weave*. Named after the man who perfected the tactic during World War II—Lt. Commander Thatch—the Weave employs a series of timed BnZ runs. Two fighters (or flights of



The Waltz requires both pilots to use different tactics to bring down a bandit.



The Bracket gives the bandit few options because he's trapped between two attacking fighters.



The Thatch Weave employs a series of timed BnZ runs to limit the battle choices of the enemy.

fighters as Thatch used) take turns diving on the enemy from opposite directions. If the enemy tries to climb to meet the first flight head-on or chase the first flight after the pass, he becomes a sitting duck for the second flight because he loses E turning. The Weave can also be performed in a manner that resembles a Drag. Instead of attacking from opposite directions, two fighters begin their runs from the same direction. Timing is crucial for success, so the second flight must delay his attack run until the first flight is just closing over the enemy.

Final Tips

Consider these final tips to enhance your Fighter Ace experience and continue to hone your air combat skills:

- Once you get online, read The Scoop. It announces special events, as well as other things you might find of interest.
- If you're new to Fighter Ace, the best times to fly are late afternoon (Eastern time, U.S.) or late at night. Evenings are most crowded, and things get pretty hectic when there's a lot going on. If you fly during the suggested times, however, you'll increase your chances of finding an experienced player with whom to fly (or fly against) in a less-crowded environment.
- Don't get discouraged. Every Ace started as a beginner.
- Practice, practice, practice! There's no substitute for flight time. Use the Practice Flight option to test different aircraft. It's much easier to familiarize yourself with a new airplane and discover its strengths and weaknesses without a bandit around trying to kill you. Once you've learned how well the airplane turns, what the minimum required speed is to do a loop, how long before your guns/cannon overheats, and whether the use of flaps helps or hinders turning, you can take on the competition.
- Ask questions in the Fighter Ace game room or chat rooms. There's almost always some Fighter Ace veteran willing to share a few pointers with a new pilot if you ask.
- Remember to check the player list in the Fighter Ace room. One of your buddies might be there or up flying. Good team tactics are tough to beat so it's in your best interest to locate buddies.



- Don't just dive into a furball. Remember everything you've read in this book.
- Follow a group of your teammates into battle—there's security in numbers.
- Choose your fights and targets carefully. When you're faced with TnB and BnZ airplanes, go after the best turner first because all fights eventually become turn fights if they last long enough.
- If both enemy planes are of equal capabilities, go for the higher one first—it's the most dangerous due to its higher E level.
- If you have an equal amount of E as the bandits, fight the BnZ fight first and take out the plane you can get the quickest.
- Check your radar often (if available), especially during a fight. It's often useful to grab quick peeks while extending after a firing pass.
- Occasionally change camps and airplanes. You might like the way other airplanes fly and how other camps fly together.
- When you begin flying during the more active times, observe battles from high altitude. Watch how they're fought. See who sticks around too long and who knows their stuff. Just be sure to scan while you're doing this, or you might get jumped while you're gawking at the action below.
- Fly over a battle and watch. Note how planes move in a fight. Learn to recognize the pattern of a battle.
- Film your battles. If you get killed, watch the replay, and then switch around to the other aircraft views to see why you failed. You may need to rethink the tactics you chose for that aircraft. Also watch replays made by others. Learning what got you killed and how others survived can teach you valuable lessons in strategy.

Most of all, have fun! Although *Fighter Ace* can be quite competitive, remember that it's just a game. In the heat of battle, sometimes that's easy to forget.

GLOSSARY OF ZONE & INTERNET TERMS

AOL: Abbreviation for America Online, a popular online service.

avatar: An icon or computer image representing each player.

applet: A small program or utility that isn't large or complex enough to be considered a full-blown application.

bandwidth: A measure of the amount of information that can flow through a given path at any given time. To use an analogy, if low bandwidth is a two-lane back road, high bandwidth is a six-lane super freeway.

baud rate: A unit of measure for the speed of data transmission. Technically, it's the number of times the communications line changes states each second. Although some people use the terms baud and bits per second (bps) interchangeably, they're not identical measurements.

BBS (Bulletin Board System): A system offering information accessible via computer, modem, and phone line. While that definition technically includes services such as MSN, BBSs are generally much smaller in size and scope.

beta test: A testing period in the development cycle of a new product or service designated to discover problems (or "bugs") prior to its release to the general public.

board: Short for a BBS or message board.

bots: Computerized opponents. Short for "robots."

bounced: Usually refers to email that has been returned to the sender as undeliverable, but members who have been dumped refer to themselves as being bounced.

bps: Abbreviation for bits per second, a method of measuring the speed of data transmission.

brb: Online shorthand for "be right back." Use this if you need to be away from the computer or game board for a short time. It's customary to announce you're back as well, although your opponent will figure that out when your pieces begin moving.

browse: To explore casually, as opposed to examining in detail. Used in Internet terms, it means surfing from site-to-site with no real purpose in mind.

browser: Any software program allowing you to navigate the World Wide Web and view its pages.

bug: A problem or defect in a software or hardware product. Zone bugs should be reported to a sysop.

chat: To engage in real-time communication on an online service.

client: The computer that requests information from another.

cookie: A small text file sent by a Web server to any newcomer visiting the site. Among other things, a cookie can help the server determine if you've previously visited the site.

cross-post: Placing the same message in several folders, message boards, or newsgroups. Abuse of cross-posting is considered bad Netiquette.

cyberspace: The infinite electronic world created by our computer networks.

default: The original (although not always the recommended) configuration or settings supplied by software programmers.

digital: Information represented by two discrete states (either one or zero). It's also commonly referred to as binary information.

download: The transfer of information from a remote computer to a storage device on your local computer.

dumped: Disconnected against your will, usually by an interruption in phone service.

email: Abbreviation for electronic mail. Email can be public or private.

email address: A cyberspace mailbox.

emoticons: Internet symbols consisting of keyboard characters used to give and gain insight on emotional states. They're usually viewed sideways. New variations pop up every day, but here are just a few:

:) happy face

:-) or :^) smile with a nose

8-) smile with glasses

;) wink

: (unhappy face

FAQ: Acronym for Frequently Asked Questions. An information file or database answering the most common concerns and issues in a question-and-answer format.

file compression: A programming technique that reduces the size of many files in order to save space and file transfer time.

firewall: A system of filters and authentication that controls the flow of traffic between the Internet and internal networks and systems.

flame: A caustic comment or exchange in a chat, post, or email. Harassment and vulgarity aren't allowed in the Zone, so flames should be reported to a sysop or MVP.

FTP: Acronym for File Transfer Protocol, one method of transferring files to and from computers connected to the Internet.

fwd: Abbreviation for "forward," as in forwarding email to someone.

gateway: A link to another service, such as the Internet.

gg: Online shorthand for "good game." It's considered courteous to acknowledge a good game whether you win or lose.

handle: An online pseudonym or screen name.

HTML (HyperText Markup Language): The language for Internet documents which allows Web pages to be made available over the Internet.



HTTP (HyperText Transfer Protocol): The communication protocol used to transfer pages on the World Wide Web.

hyperlink: A connection to any item or site on the Internet.

interactive: Having the ability to act with another human or computer program.

Internet: The vast interconnected electronic system used for the exchange of information and ideas. It's not an online service, but it interconnects computer systems and networks all over the world.

ISP: Acronym for Internet Service Provider. Although online services such as AOL fit this description, ISPs generally refer to services that offer only Internet connections.

Java: A simple, object-oriented, platform-independent, multi-threaded, general-purpose programming environment. It's currently very popular for creating applets and applications for the Internet.

library: An online area where files are uploaded and downloaded.

link: An electronic connection or pointer (often highlighted with a color) on a Web page that can take you to a related page or site when you activate it (usually by a double-click with your mouse).

lurk: To watch and read at a site, newsgroup, chat, and so on, but contribute very little or nothing at all.

macro: A recording of keystrokes and mouse movements allowing you to automate tasks.

message board: An area where you can post messages to exchange information, ask questions, or reply to another message.

MSN: Abbreviation for the Microsoft Network, Microsoft's online service.

MVP (Most Valuable Players): Zone volunteers who help keep the service running smoothly.

Net: Abbreviation for the Internet.

Netiquette: Rules of conduct for online social interaction. Net manners, if you will. Common Netiquette includes not using all caps in messages unless you're intending to yell, and not posting get-rich-quick schemes or spam.

newsgroups: The Internet version of public message boards, usually divided according to common interests, hobbies, or subjects.

node: A computer or device accessible via a phone number to connect to a telecommunications network.

offline: When a computer is disconnected from another machine or service.

online: When a computer is connected to another machine or service via modem or LAN (Local Area Network).

Packet-Switching Network (PSN): The networks that enable you to access a remote online service using a local phone number.

page: A document on the World Wide Web presented in the browser window. WWW pages can contain links, text, graphics, sounds, or videos. A set of pages is referred to as a "site."

parity: A method of information error-correction at the character level. While parity is used for system memory, in online communication, parity refers to modem-error correction. Error correction has become less common today, so parity is almost a thing of the past.

password: The secret code (a word or string of characters) used to secure an online account.

PING: The TCP/IP acronym for Packet INternet Groper, which refers to a small network message (ICMP ECHO) sent by a computer to check for the presence and alertness of another computer on the Net.

PKZip: A popular compression utility for PCs to compress one or more files into a single, smaller file (called an archive). Compressed files make for shorter up and downloading. A compressed file is "zipped"; the act of decompressing is "unzipping."

post: The act of putting something online, usually into a message board or newsgroup. It also refers to the message on a message board or newsgroup.

protocol: The electronic rules governing how computers communicate with each other.

punt: To be disconnected from your online service. Such problems are often a result of difficulties at your ISP or interference on your node (such as line noise).

re: Abbreviation for "regarding" or indicating a reply to an email.

screen name: The name (pseudonym) that identifies a member online.

scroll bar: The bar on the right-hand side of a window that allows you to move the window's contents up and down, or on the bottom of a window for moving things to the left or right.

search: Refers to a specific exploration of files or entries, rather than a reading done line-by-line. Typically, the term is used in association with research libraries and other searchable databases.

self-extracting archive: A compressed file that automatically decompresses when opened.

sim: Abbreviation for simulation.

site: A specific place on the Internet, usually consisting of a set of pages on the World Wide Web.

snail mail: Slightly derogatory reference to mail sent via the U.S. Postal Service.

surf: To cruise in search of information not readily evident. People surf the Web hoping to discover something new.

spam: Unsolicited junk email.

sysop: Abbreviation for "system operator." Pronounced "SIS-op."

TCP/IP: Acronym for Transmission Control Protocol/Internet Protocol, the protocol language Internet machines use to communicate with one another.

thread: A series of messages relating to the same subject.

timeout: Protection used by online services, ISPs, or Web sites to guard against members staying signed on for a long period of time without actually being near their computer.

APPENDIX A: GLOSSARY

title bar: The portion of a window where its name is displayed.

toast: Something totally ruined or unusable.

upload: Transfer of data (email or file) from your computer to a remote computer.

URL (Uniform Resource Locator): An electronic address for an Internet resource such as a World Wide Web page or an FTP site. URLs always start with `http://`.

USENET: The designation that encompasses all newsgroups.

virus: Software that has the ability to attach itself to other software or files, does so without your permission or knowledge, and is generally designed only to propagate itself. Viruses are sometimes intentionally destructive, but not all virus damage is by design. Some viruses cause damage because they're poorly written.

Web: *See* WWW.

window: The area where information is contained, usually within a graphical border to distinguish it from the rest of the computer screen.

WWW: Abbreviation for the World Wide Web, the section of the Internet containing many hypertext documents linked together by a special protocol called HyperText Transfer Protocol (or HTTP). WWW information is accessed through browsers such as Internet Explorer or Netscape.

zip: *See* PKZip.



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Contact the Zone Webmaster with questions or problems with this service.



STEP-BY-STEP ISP SETUP

You can access the Zone via an Internet Service Provider (ISP), but you first need to have an account. If you already have an ISP account but haven't used it yet, this section will help you get online.

Dial-Up Networking

In order to use Dial-Up Networking, you first need to create a Dial-Up Networking connection. To do this, open up the Dial-Up Networking folder, usually found under "My Computer." If it's not there, install it by following the instructions below. If Dial-Up Networking has already been installed, skip down to "Making a Connection."

To Install Dial-Up Networking:

1. Open Control Panel.
2. Double-click Add/Remove Programs.
3. Click the Windows Setup tab.
4. Select Communications.
5. Click the Details button.
6. Check the box next to Dial-Up Networking.

TCP/IP Protocol

Next, verify that you have TCP/IP installed. To check or install TCP/IP, use the following instructions.

Note: *Most ISPs are accessed through a Dial-Up Network, and these instructions apply only to those services.*

To Check or Add TCP/IP:

1. Open Control Panel.
2. Double-click on the Network Icon.

If TCP/IP is listed in the dialog box, skip to "Making a Connection."

3. Click the Add button.
4. Select Protocol in the next dialog box.
5. Click the Add button. A two-paned dialog box opens.
6. Select Microsoft on the left under "Manufacturers."
7. Select TCP/IP on the right under "Network Protocols."

Creating a Connection

The following shows you how to create a Dial-Up Networking connection.

To Create a Dial-Up Connection:

1. Double-click My Computer.
2. Double-click on the Dial-Up Networking folder.
3. Double-click on the Make New Connection icon.
4. Supply the information requested by the wizard.
5. When you're finished, click the Finish button. An icon bearing the name of the connection you chose in the wizard appears in the Dial-Up Networking Folder.

Configuring Your Connection

Next you need to configure the Dial-Up Networking Connection you just created. To configure the Dial-Up Networking Connection:



1. Right-click the connection icon you wish to configure.
2. Select Properties from the pop-up menu.
3. Click the Server Type button.
4. Configure the server and TCP/IP parameters to match the requirements of your ISP.

Note: Your ISP may provide some Dial-Up script that automates your log-on process. In that case, you won't need to enable the terminal windows. Please contact your ISP for details.

Getting Online

If your ISP connection doesn't use PPP, or if it requires entering more than your user name and password, or if you'd just like to log on manually, you need to enable a terminal window for your Dial-Up Connection.

To enable a terminal window for a Dial-Up Connection:

- Right-click the connection icon you wish to configure.
- Select Properties from the pop-up menu.
- Click the Configure button.
- Select the Option tab.
- Check the "Bring up terminal window after dialing" box.

From now on (or until you un-check the terminal window box), a terminal window appears after you make your connection. From this window, you're able to insert manually any additional information your ISP may require.



UNINSTALLING THE ZONE SOFTWARE

There may come a time when you want to uninstall the Zone software. It's hard to imagine what reason you'd have—maybe failing grades, poor work performance, or impending relationship disintegration. So in case of that type of catastrophe, here are the uninstall instructions:

Uninstalling the Zone Software

If you need to uninstall the Zone software, simply run the Uninstall program. Just follow these directions:

To Run Uninstall:

1. Open Control Panel.
2. Click Add/Remove Programs.
3. In the dialog box, select the Zone software you wish to remove.
4. Click the Add/Remove button.
5. Click Yes when asked if you're sure you want to remove the application.
6. Restart your computer.

Common Problems and Questions

In a perfect world, if you installed and uninstalled the Zone software using the Install and Uninstall programs, you wouldn't have any problems. But gremlins are out there, so here are solutions and answers to some commonly encountered problems.

Note: If you want to continue playing an uninstalled ZoneMatch game, you will need to reinstall it.

your computer. This usually occurs when the Uninstall program for the Zone isn't used. The Zone Uninstall can delete only the files originally installed by Setup. All other files (that is, game files) that weren't installed with the original Zone installation remain on your hard disk until they're manually deleted. For information about manually deleting the remaining folders in Windows, see your Windows printed documentation or online Help.

Leftover Folders

Even after officially "Uninstalling" the Zone software, you might find that some of the Zone folders remain on

Matchmaking After Uninstalling

If you're still able to matchmake a game after uninstalling the Zone software, you probably didn't remove the multi-player patch for that game as well. The Zone Uninstall program doesn't remove multi-player patch software. In order to uninstall a multi-player patch, you need to uninstall the game and then delete the folder the game installed from your hard disk.

Game Folder Returns After Removing It

If the folder for a card or board game reappears on your hard disk after you've removed the Zone software from your hard disk, you probably have re-entered the removed game's game room. Each time you enter a game room, the game software is installed on your hard disk and a folder created for it.



AVIATION AND FIGHTER ACE JARGON

Aviation has its own unique terms. Over the years these terms have been combined with other slang descriptions and have evolved into the language of air combat. Unless the pre-programmed radio messages suit your current situation or you've had enough insight into Fighter Ace to add or alter enough messages to cover all situations, using the radio in Fighter Ace will require flying and typing at the same time. If too much of your attention is spent on typing rather than flying, the extravagance of long, descriptive messages will become painfully evident. Nothing is worse than getting shot down because you're busy typing to your Teammate to watch his or her tail while yours is being torn to shreds.

This is why most terms become acronyms (Radar, for example, actually stands for Radio Detecting And Ranging) or abbreviations (like dar for the same term). Here are the most common ones you'll run across in Fighter Ace and this book:

2a	Hurricane IIa.
2c	Hurricane IIc.
3	Yak-3.
5	La-5.
7	La-7.
9	Yak-9.
14	Spitfire XIV.
38	P-38 Lightning.
51	P-51 Mustang.
109	Bf-109.
190	Focke Wulf 190.
AAA	Anti-aircraft artillery.
Ack	same as AAA.
Ack-Ack	same as AAA.
AFK	Away from the keyboard.
AI	Artificial intelligence.
Alt	Altitude.

Angels	Another term for altitude, in thousands of feet (e.g., "Angels 10" means 10,000 feet, or 10K feet in this book).
Auger	Crash landing (suggesting that the aircraft screws itself into the ground).
B4	Before.
Bastiches	Enemy (derogatory).
Bandit	Enemy plane.
Bingo	Used if you're out of or short on something, followed by the item you lack (e.g., "Bingo ammo").
BnZ	Boom and zoom, a style of attack.
Bogey	Unidentified aircraft.
BRB	Be right back. This means you'll be away from your computer for a moment. It's followed by "back" or "bak" when you return.
Bug	To run away.
Bzy	Busy.
CC	I understand (for "I copy you," as in "carbon copy").
Con	Short for icon, meaning you're close enough to pick up a local tracking icon (e.g., "Con GE!").
Crate	Airplane.
CV	Corner Velocity.
Dar	Radar (which is itself an acronym for Radio Detecting And Ranging).
Deadstick	Flying without the aid of engine power.
Dien	Dying.
Dot	Bogey.
Drag	Head this direction with enemy following (e.g., "Drag South").
Draggin	I've got a bandit on my tail and need help; or, This is an easy kill for anyone joining me at location (e.g., "Draggin FW East").
Dump	You were disconnected from the Zone against your will.
Dweeb	An unskilled player.
E	Energy.
Efighter	A type of fighter aircraft suited to high-speed attack, but not dogfighting (e.g., "Grab an efighter"), or a pilot who practices boom and zoom energy tactics (e.g., "He's a pure efighter").
Enema	Derogatory for "enemy".
Fiter	Fighter.
Frag	Kill or shoot down a friendly.
Fragged	Killed or shot down by a friendly.
Fumes	Bingo fuel.
Furball	A thickly populated dogfight.
FW	Fw-190.
FWIW	For what it's worth.



GB	British (Great Britain) designation for aircraft, camp, or player. Grimming, ducking, and running.
Glider	Same as deadstick.
GE	German (Germany) designation for aircraft, camp, or player.
Hail	Greetings and salutations.
Hehe	Laughter.
Hdg	Heading, usually followed by what heading it is (e.g., "Hdg 180").
Icon	Same as Con.
IMHO	"In my humble opinion," yet rarely is there much humility involved with this acronym's use!
In	Engaging the enemy; this is often said with a bit more enthusiasm, such as "In In In!".
k	One thousand (e.g., "Bogey at 5k").
Keel	Kill.
Kts	Airspeed in knots.
L8r	Later, meaning see you later.
Mg	Machine guns.
Nme	Enemy.
No Joy	You don't see the plane that someone has pointed out to you.
Off	You're disengaging.
OTW	On the way.
Out	Same as "Off" except sometimes "Out" is followed by your exit heading (e.g., "Out 245"). Out can also refer to how far away you are from something you're trying to reach (e.g., "Hang on! 5k out").
OTOH	On the other hand .
Ping	Feedback, on your end, of a hit you've suffered.
Pony	P-51 Mustang.
Poof	Tells people that you're logging off immediately; a last good-bye before exiting the game.
Rgr	Roger, same as CC.
ROFL	Rolling on floor laughing; it means you think something is very funny. This has many variations, from LOL (Laughing out loud) to ROFLMAO (Rolling on floor laughing my arse off).
RTB	Return to base.
Runstang	Derogatory for BnZ Mustang pilot; used as a taunt.
SBL	Surrounded by Lostness; a confused player.
Sist	Assist, used as a thank you for assistance.
Six	Directly behind you—as in "on your six".

Smoke	Generally used as a verb in <i>Fighter Ace</i> , it means to leak oil or fuel due to hits from gunfire, or to cause the same to happen to someone else (e.g., "I smoked him!")
Spit	Spitfire.
Stallfight	A dogfight occurring near stall speed.
Stang	P-51 Mustang.
SU	Soviet (Soviet Union) designation for aircraft, camp, or player.
Thnx	Thanks.
TnB	Turn and burn; a style of fighter attack.
Tx	Thanks.
U	Abbreviation for "you".
Up	Just took off. Usually followed by aircraft type (e.g., "Up in Pony").
Ur	Abbreviation for "your" or "you're".
US	American (United States) designation for aircraft, camp, or player.
Vis	I see, or I have him visually sighted (e.g., "Vis Stang") This is similar to "Con" except that it includes more-distant planes that you may have identified with your radar. Generally, "Vis" is less urgent than "Con."
VSI	Vertical Speed Indicator.
Vulch	From the noun <i>vulture</i> , in <i>Fighter Ace</i> it becomes a verb, meaning to prey on a nearly or completely defenseless victim (less elegantly, to eat dead meat). "Nice vulch!" isn't entirely a compliment.
Vy	Best rate of climb.
Warp	Network delays causing planes to appear as if they're jumping around, rather than flying around.
Wingie	Wingman.
WTG	Way to go! Good job!

DEFAULT FLIGHT KEYBOARD CONTROLS

This appendix provides reference material on the default keyboard controls available in Fighter Ace. These commands may not work if you're using a remapped Flight Keyboard. Please see the Flight Keyboard section in Chapter Three for more information.

Flight Controls

RightArrow	Bank right	B	Apply/Remove brakes
LeftArrow	Bank left	F	Lower flaps
UpArrow	Dive	D	Raise flaps
DownArrow	Climb	G	Raise/Lower landing gear
X	Rudder right	Space	Fire/Redraw map
Z	Rudder left	R	Start/Stop Replay recording
C	Rudder center	T	Automatic elevator trim
- (minus key)	Decrease throttle	S	Toggles digital displays
= or +	Increase throttle		

Cockpit View Keys

F1	Show Help Window	'	Full Screen to the right
F2	Cockpit view	/	Full Screen back
F3	Full Screen forward	;	Full Screen to the left
[Full Screen up		

3D Cockpit and External View Controls

F4	Padlocked 3D cockpit	5	Raise camera view
Alt F4	3D cockpit	6	Lower camera view
1	Rotate camera left	,	View previous plane (Padlocked 3D)
2	Rotate camera right	.	View next plane (Padlocked 3D)
3	Zoom camera view in	E	View nearest enemy (Padlocked 3D)
4	Zoom camera view out		

Note: Zoom controls only work on external view modes.

Tactical Keys

M	Show tactical map	Ctrl Alt F5	Display camp tags
Alt M	Show 'Radar'	Alt T	Data Screen mode
Ctrl F5	Display distance tags	Ctrl Shift F5	Display Rank tags
Alt F5	Display pilot ID tags		

Communications Keys

7	Talk to enemy	Shift Tab	Select previous message
8	Talk to friendly pilots	Enter	Send selected message
Enter	Talk to all	Home	Select first message
Alt 7	Send message to enemy	END	Select last message
Alt 8	Send message to friend	Q	"Gag" pilot
Alt Enter	Send message to all	U	"Un-gag" pilot
Tab	Select next message	L	Log Screen

Graphics Detail Keys

Ctrl Gray*	Full screen size/High map detail	Ctrl F4	Decrease smoke trail length
Ctrl Gray-	Decrease screen size/map detail	Alt F8	Haze on/off
Ctrl Gray+	Increase screen size/map detail	Alt F3	Draw lines around air fields
Shift F4	Increase smoke trail length	Ctrl F3	Ground grid in low detail on/off

Sound Controls

Ctrl Alt -	Decrease master volume	Alt -	Decrease game sound volume
Ctrl Alt =	Increase master volume	Alt =	Increase game sound volume

Additional Simulation Commands

P	Pause
Ctrl Z	Save screenshot as SHOTxxx.BMP

External and Alternate Views

Shift F6	External friendly POV	F8	External view with ground orientation
F6	External stationary tracking	F9	Static camera pan view with tracking
F7	External view with plane orientation	F10	Static camera view

FILM REPLAY KEYBOARD CONTROLS

This appendix provides reference material on the default Film Replay keyboard controls available in Fighter Ace. These commands may not work if you're using a remapped Film Keyboard scheme. Please see the Film Keyboard section in Chapter Three for more information.

Note that none of these commands will work when you are in auto mode, and most of the View, Tactical, and Simulation control keys are identical to the default Flight Keyboard controls found in Appendix F.

Film Replay Controls

Backspace	Film camera mode auto/manual	DownArrow	Previous frame
NumPad5	Stop	Home	To film start
RightArrow	Play forward	End	To film end
LeftArrow	Play back	Tab	Next Plane
PageUp	Fast forward	Shift Tab	Previous Plane
PageDown	Fast back	Ctrl Z	Save screenshot as SHOTxxx.BMP
UpArrow	Next frame		

View Keys

F1	Show Replay Help Window	F4	3D cockpit
F2	Cockpit view	F6	External stationary tracking
F3	Full Screen forward	F7	External view with plane orientation
[Full Screen up	F8	External view with ground orientation
]	Full Screen to the right	F9	Static camera pan view with tracking
/	Full Screen back	F10 or Ctrl F6	Static camera view
;	Full Screen to the left		

3D Cockpit and Camera View Controls

1	Rotate camera left	5	Raise camera view
2	Rotate camera right	6	Lower camera view
3	Zoom camera view in	Insert	Level camera
4	Zoom camera view out		

Note: Zoom controls only work on external view modes.

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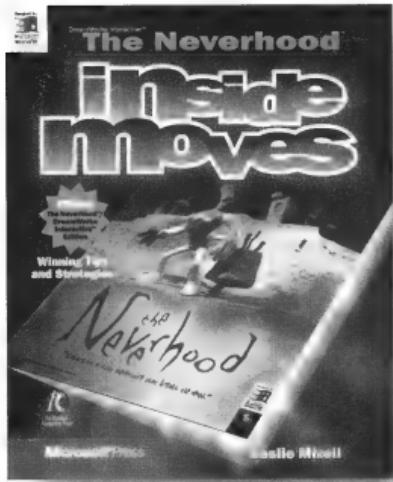
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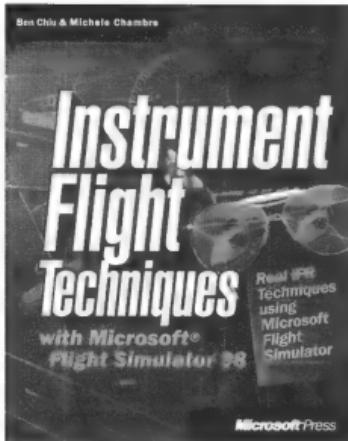
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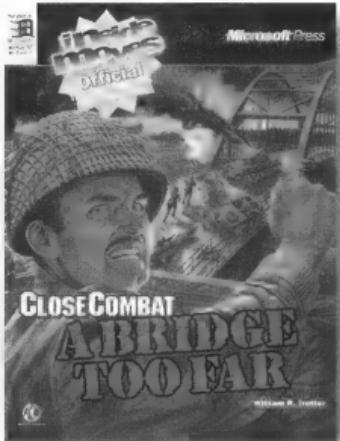
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